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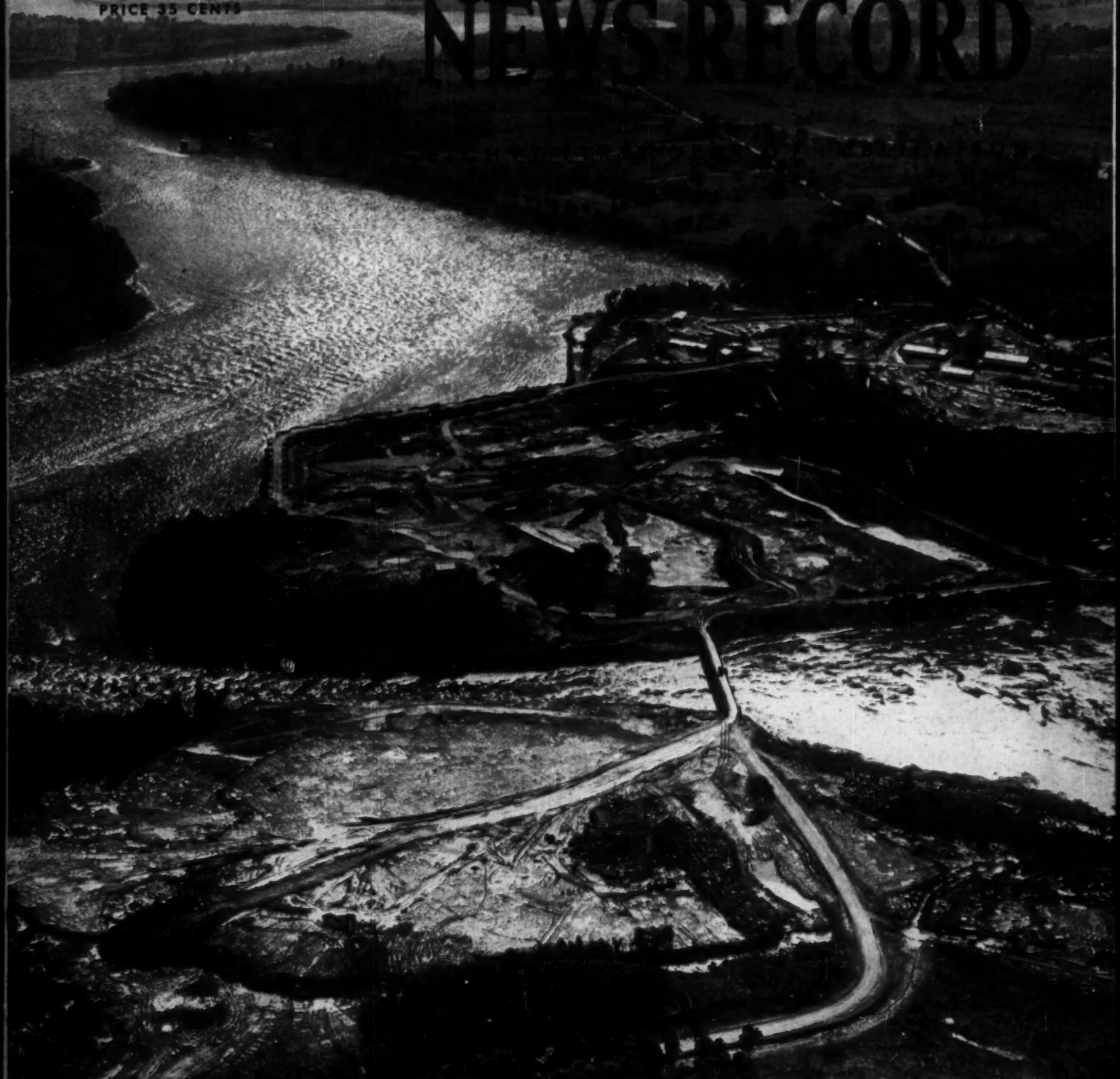

St. Lawrence Construction: One year later *(p. 34)*

E B POWER GS
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313 N 1 ST

"Overlapping grip" gives tunnels more strength

When heavy timbers were used for tunneling, the process was inefficient and often hazardous. No one could tell the exact strength of even the heaviest beam.

An improvement was made with the development of metal plates. But Armco Engineers were still not satisfied. They wanted more strength with less weight for easier handling. Corrugations provided part of the answer. Then they took a cue from golf experts and designed the "overlapping grip" of today's Armco Liner Plates. This made corrugations, overlapping at each joint, continuous around the rings. On a pound-for-pound basis, it is *the strongest liner plate structure made!*

The same principle of strength-through-corrugating is used in the design of many other Armco Structures—including Standard Corrugated Metal Pipe and Pipe-Arch, MULTI-PLATE Pipe, Arch and Pipe-Arch, FLEX-BEAM Guardrail, Perforated Pipe and Steel Sheeting. These and other Armco Products are the result of 50 years of manufacturing and fabricating steel.

Armco has 49 manufacturing plants and twice that many sales offices conveniently located in the United States and Canada. Wherever you may be, there is a nearby sales office to quickly provide data; and a fabricating plant to give prompt delivery. Why not put our service to the test, and write us today about your particular drainage or construction problem.

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ARMCO DRAINAGE & METAL PRODUCTS, INC.

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Sh Sh Sh ... hospital zone!

Above: New wing of Pittsburgh's Shadyside Hospital. Architect Pressley Dowler, Pittsburgh. Fabricated and erected by Pittsburgh-Des Moines Steel Co.

Right: RB&W high strength bolts give column splice optimum strength.

QUIET steel erection done with RB&W high strength **BOLTS**

PUT PATIENTS through the din of structural steel riveting? Unthinkable! So this new wing of Pittsburgh's Shadyside Hospital was field bolted with RB&W high strength bolts . . . and was all the better for it.

Along with the quiet, the 191 tons of steelwork also went up *fast*. Bolts were installed faster than rivets . . . with two-man teams using impact and holding wrenches instead of usual four-man rivet crews. Hazards of hot rivets were avoided. Joints were stronger, too. Here's why . . .

Bolt strength is greater than rivet strength. When RB&W high strength bolts are tightened almost to yield point, they clamp structural members with a force that develops optimum shear and tensile strength in the joint. RB&W bolts *stay tight* . . . actually fortify the bolt holes with compressive stresses.

RB&W is the largest independent producer of high strength bolts for construction. RB&W bolts have fully controlled quality you can depend on, uniform threads and dimensions . . . have proved themselves on all types of jobs.

See the RB&W catalog in Sweet's Architectural or Industrial Construction File (2cR/V) or send for "High-Strength Bolts" reprinted from Architectural Record.

Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

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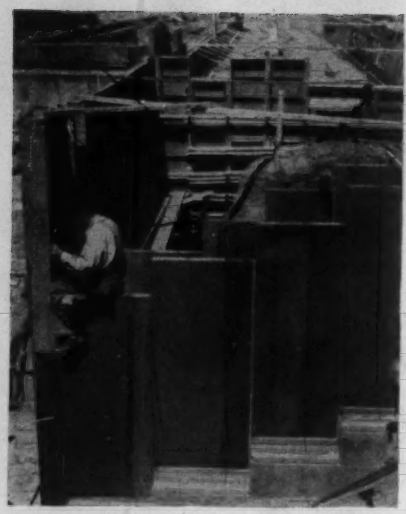
110th year

Plants at: Port Chester N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee, New Orleans, Denver, Seattle. **Distributors** from coast to coast.



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The construction of stepped footings, ordinarily an expensive method of forming, was handled at no extra expense, on the administration building at the Sandia (N.M.) Air Force Base, by the use of Symons Forms.

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Robert F. Boger
Publisher

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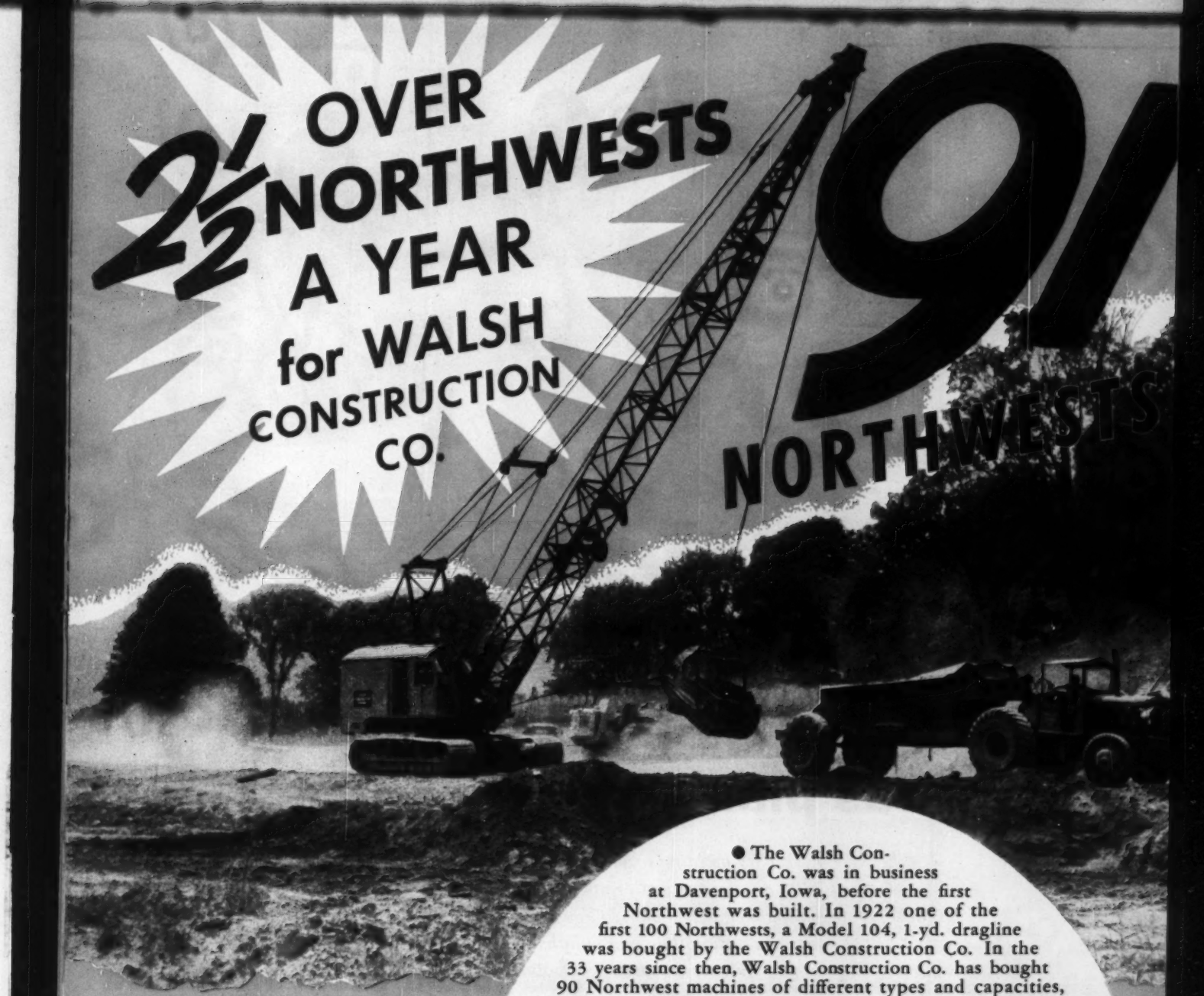

● The Walsh Construction Co. was in business at Davenport, Iowa, before the first Northwest was built. In 1922 one of the first 100 Northwests, a Model 104, 1-yd. dragline was bought by the Walsh Construction Co. In the 33 years since then, Walsh Construction Co. has bought 90 Northwest machines of different types and capacities, making a total of 91 rigs. This is an average of not quite three Northwests a year for 33 years.

The Walsh Construction Co. has become one of the world's great contracting organizations. They have reached this position by, among other things, buying dependable money-making equipment. They can own any make of machine they want and they do own other makes of machines—but they have bought nearly 3 Northwests a year for 33 years. Obviously, Northwest Shovels, Cranes, Draglines and Pullshovels must have delivered a *plus service* that made this long continued relationship possible.

You want that *plus service!* It's the service that makes money. It's the reason why one out of every three Northwests sold is a repeat order in the hands of contractors everywhere.

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CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

The new Streamliner 400 speeds plans for subcontractors–

One New York City building recently erected required 5800 different sets of prints for city officials, subcontractors and suppliers. Thousands of hours of drafting time and months of delay were saved by Ozalid.

Any architectural, engineering or production department can save drafting time and repetitive work with Ozalid's newest whiteprinter, the STREAMLINER 400, which will reproduce anything drawn, written, typed or printed on translucent material – drawings, reports, specifications, material bills, etc. It makes exact, clear, dry copy in less than a minute, for less than 1½ cents per square foot.

The new low priced Ozalid STREAMLINER *400 has synchronized printing and developing... produces perfect whiteprints for less than 1½ cents per square foot.*

The STREAMLINER 400 has synchronized printing and developing, handles sheet or roll stock up to 42″ wide, and prints as fast as 24′ per minute. It is compact, easy to run, and economically priced.

Ozalid duplicate originals can also be turned out fast and inexpensively on the new STREAMLINER 400. These translucent Ozalid prints make it easy for you to make changes on your valuable drawings without affecting the basic, unchanging design... save countless hours of draftsmen's time, and have vital prints on time!

You can find out about the STREAMLINER 400 by calling the nearest Ozalid distributor. *(see phone book)* Or write for information to 153 Ozaway, Johnson City, N. Y. In Canada, Hughes Owens Co., Ltd., Montreal.

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OZALID

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

International diesel power units provide dependable, low-cost power for shovels, crushers, etc. Here, McMillan Constr. Co., Denver, uses 115 hp IH diesel to power ¼-yard dragline . . . 190 hp IH diesel on 200-ton-per-hour crusher.

only INTERNATIONAL builds all these major advantages into diesel engines

1. Full-flow lube oil filters lengthen engine life

New replaceable plastic impregnated full-flow filters increase engine life by removing all harmful particles from the oil before it goes under full pressure to engine bearings. Exceptionally large filter area extends filter change period to 500 hours under normal conditions.

2. New injection pump reduces maintenance

Time proven International single and twin plunger pumps have been further simplified for longer life and lower cost maintenance. Scavenging gears and pump air pipe are eliminated . . . hardness of injection plunger increased for up to four times longer life.

3. Drilled passages assure full-time lubrication

You can be sure *all* engine bearings will be lubricated at *all* times. Lube oil is pressure-pumped through internal rifle-drilled passages that can't rupture or work loose.

4. Clean combustion on low-cost fuel

Trouble-free single orifice injection nozzles, and precombustion chambers mounted at 45° angle thoroughly mix fuel and air under all load and speed conditions. You get follow-through power strokes, clear exhaust, smooth idling on low-cost No. 2 fuel.

5. Fast, sure starting . . . always

Never mind cold—IH diesels work year 'round, even in the Arctic. Seconds-fast, they start in any weather on gasoline . . . and, seconds-fast, you switch to clean-burning, full-diesel power.

Six sizes of diesels, 52 to 190 hp, complete with radiator and fan. Also 12 models, 16½ to 200 hp, for gasoline, natural gas or LPG. See your nearest International Distributor for details.

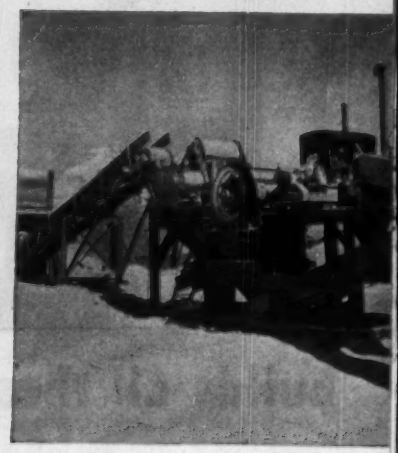
INTERNATIONAL INDUSTRIAL POWER

INTERNATIONAL POWER *in action!*

Boosting job production everywhere

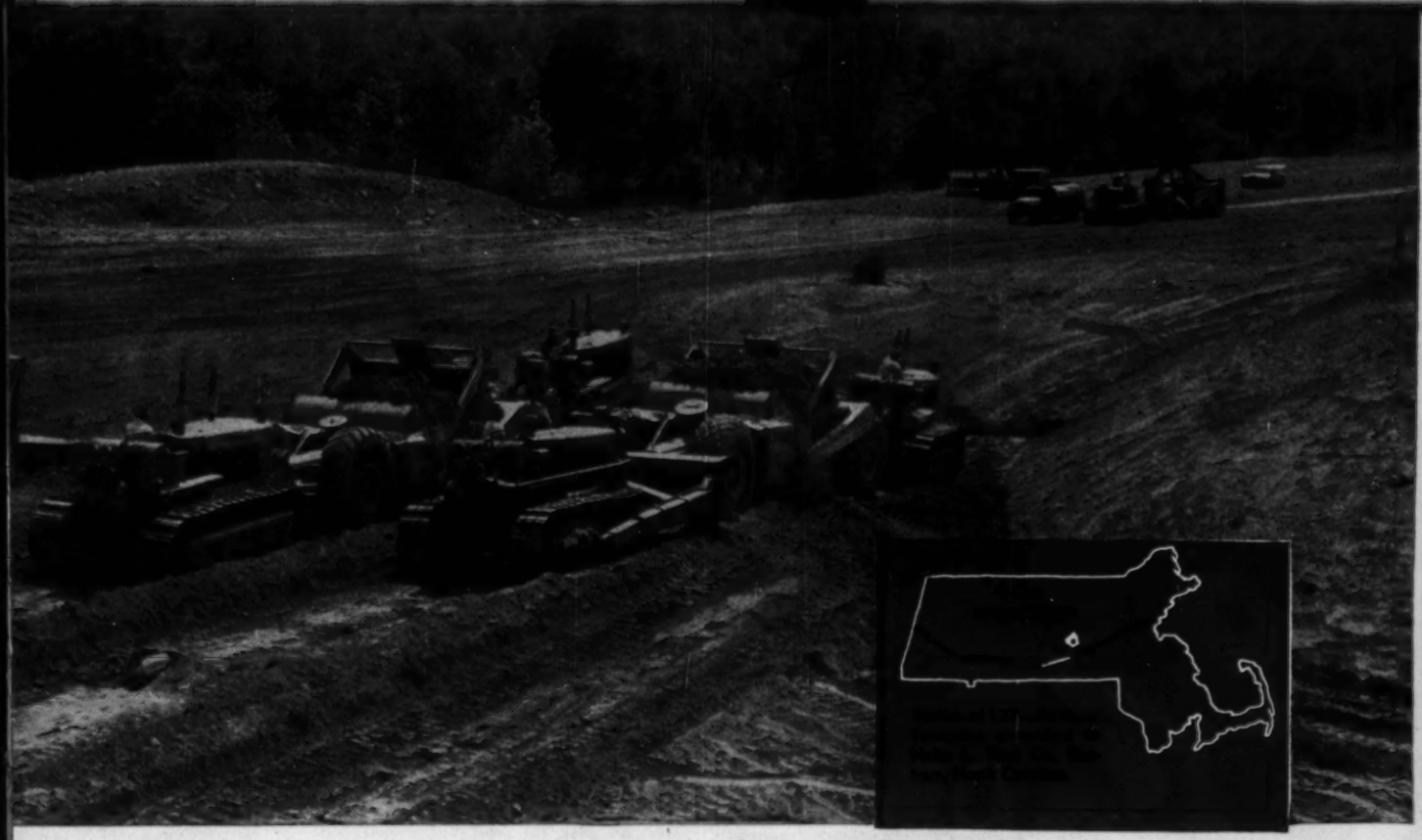
13 TD-24's for Nello Teer—Most of the tractor work on their 4.98-mile, 3,065,000-yd. $4,306,000 section of the Massachusetts Turnpike is being done by these 161 dhp crawlers. Four with scrapers combine to average 327 twenty-yard loads daily on 1500 ft one-way hauls. Others tow rippers, push-load scrapers, or clean up around Teer's two 2½ and 4-yd shovels and 10 haulers.

"1/3 more overburden daily than competitive crawlers" . . . that's the report from Merkli Brothers Coal Company, Beaver, West Virginia, on their International TD-24. Unit is stripping 40 feet of sandstone and shale to uncover a 12 to 51-inch coal seam. "It has better balance and visibility than other tractors," says Partner Henry L. Merkli. "It costs less to maintain; takes less time to grease, too."

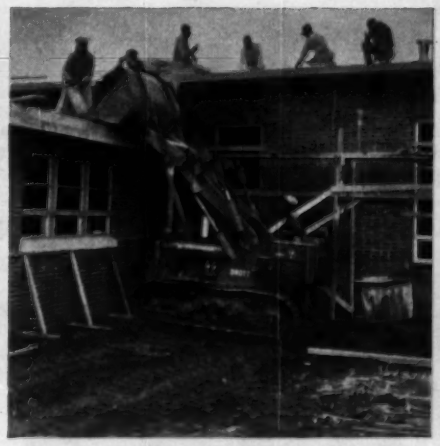


Crushes gypsum—Near Avenal, Calif., Superior Gypsum Company's International-powered crusher produces 300 tons of gypsum per 8-hr. day. Material is used to neutralize high-alkali irrigation water.

1 more trip hourly—Fast loading and acceleration help 18½-yd. Payscraper make one more trip hourly than other self-propelled scrapers used by W. E. O'Neill Construction Company, Gary, on their 2½-mile, 700,000-yard Indiana Turnpike section near Gary. Cycle length averages 2½ miles; material is mostly sand.



ft ditch in 3 hours—Excavating water main in Henderson, Texas, ternational "300" wheel tractor dug cu yds of clay hourly. Backfilling s handled by rig's front-end loader. tch is 4 ft deep, 22 in. wide.



"We saved 100 man-hours by lifting zonolite roofing slabs with our International-Drott TD-6," reports M. G. Aldrich, Macon, Georgia, on the 13,000 sq ft building job shown. Lifts of 1 ton were made to 10 ft eave height.

Rugged in rugged rock—"TD-6 is ideal for opening underground mines," says Malcolm McDonald of Kiabob Uranium Corp, Green River, Utah, "It gets around fast in narrow tunnels, yet brings out big loads."

International

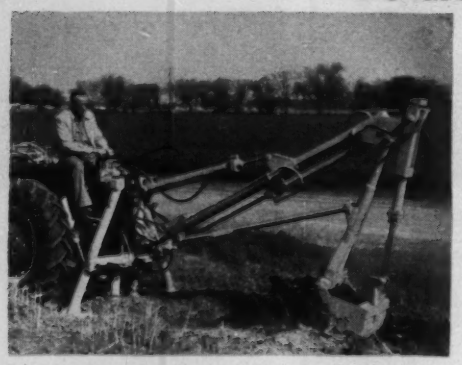
INTERNATIONAL HARVESTER

A machine size for every job . . . see your nearest INTERNATIONAL DISTRIBUTOR for details.

NEW INTERNATIONAL

New International 300 Utility tractor with backhoe and loader combination, excavated and backfilled 800 yards of shale-type clay on 32,390 sq. ft. office and warehouse in Shreveport, La. Weight and balance of this new heavy-duty tractor add greatly to stability when using heavy rear and/or front-mounte equipment.

DO MORE WORK WITH AN INTERNATIONAL 300



The rugged Model 300 tractor is ideal for special-duty equipment of all types. Here you see it powering a backhoe—a versatile digging machine for utility trenches, footings, septic tank installations, culverts, etc.

The Hydra-Touch control and fast hitch arrangement on the Model 300 make it easy to attach rear-mounted equipment such as this versatile leveling blade, which is often profitably combined with a front-end loader.

The low center of gravity, adjustable and rear wheel tread, comfortable seat an around visibility of the Model 300 ma outstanding as a mowing tractor. Here see it equipped with a hydraulic mower

INTERNATIONAL HARVESTER

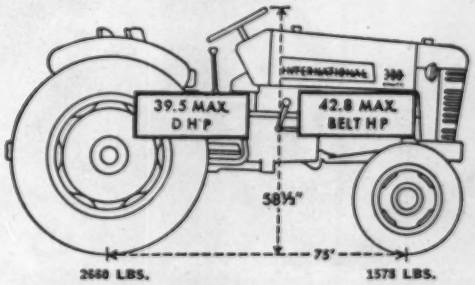
INTERNATIONAL INDUSTRIAL POWER

300 UTILITY TRACTOR

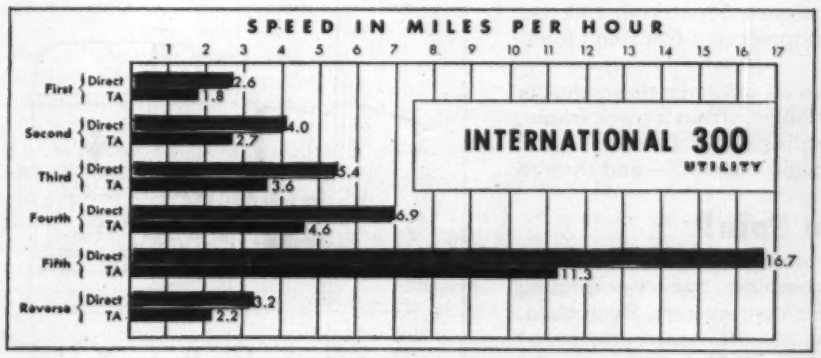
10 speeds forward with exclusive Torque Amplifier Drive... change speed, boost pull-power up to 45% *ON-THE-GO!*

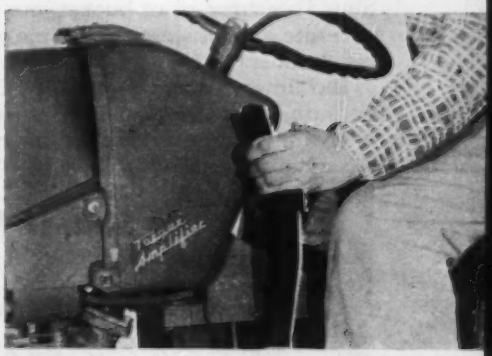
Here's a new utility tractor that outperforms anything you've seen up to now. It has more *built-in* weight to deliver traction where lighter weight utility tractors slip or stall. Every pound is working weight—more powerful engine, stronger chassis, more rugged power train and axles, with power-weight balance to step up pull and push power. It's *all* tractor, built with characteristic IH stamina to stay on the job over the long pull!

The husky tractor delivers 39.5 maximum drawbar horsepower by official test—produces 4,379 pounds pull in low gear at part throttle. The new 300 is available in more ways and with more exclusive features than other tractors of its type. For example, it's available with a standard 5-speed transmission or you can also have it with optional Torque Amplifier drive which gives you *10* speeds forward—from 1.8 to 16.7 mph—and 2 reverse. In *any* gear, you can change speed and boost pull-power without touching the clutch, the throttle, or shifting gears! *Power is delivered to the rear wheels without interruption while changing tractor speed.* With TA *and* independent power take-off, you can change travel speed while keeping power-operated equipment at constant rpm.



Unmatched traction and stability! Drawing shows power-weight balance of bare tractor—up to 1,000 pounds more built-in weight, with center of gravity only 25½ inches from the ground.



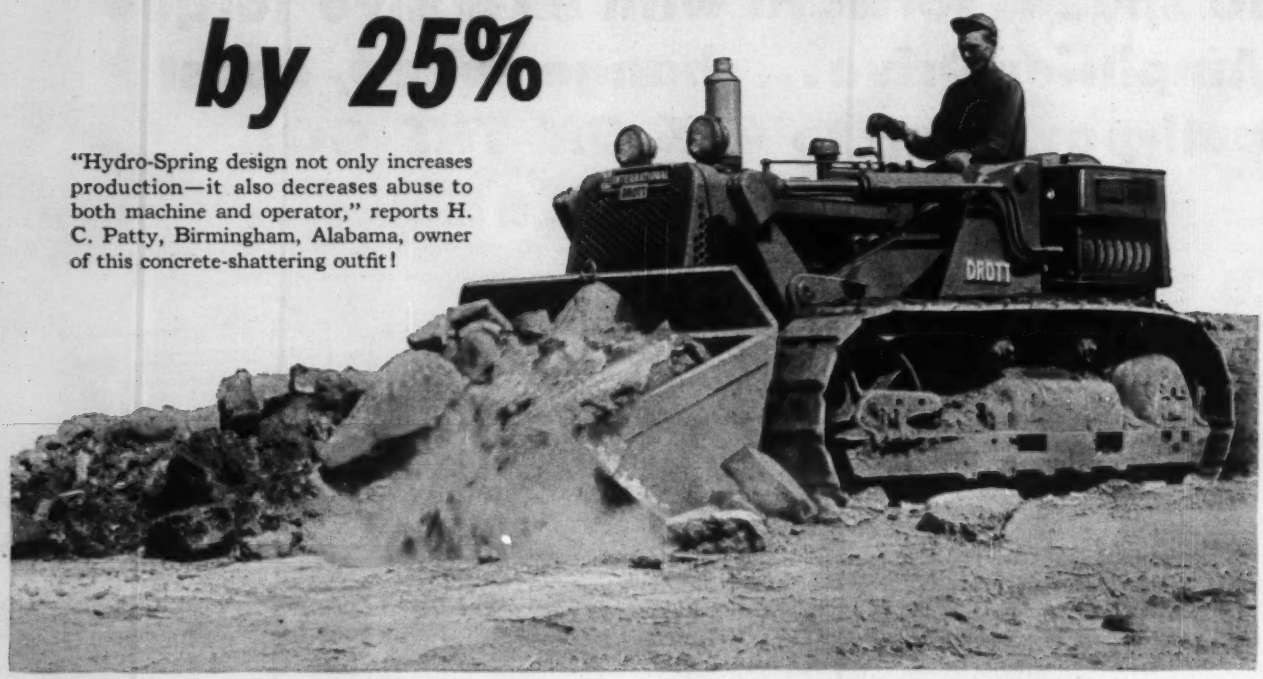


10 speeds forward, 2 reverse with IH Torque Amplifier*. Operator can increase or decrease speed, and boost pull-power up to 45 per cent *on the go* without declutching and shifting gears. He merely pulls back the lever (shown in the photo above) for instant boost in pull . . . pushes it forward to resume full speed on the go. **Optional equipment*

Sales and Service near your job . . . ANYWHERE . . . from the world's largest network of International Industrial Power distributors and dealers. Look in the classified . . . phone for an on-the-job demonstration. There's a *complete* line of McCormick and special-duty equipment to give the new International 300 *utility unlimited!* For illustrated folder, write International Harvester Co., Chicago 1, Illinois.

How Hydro-Spring's "Shock Cushion" Helps Skid-Shovels outlast all others *by 25%*

"Hydro-Spring design not only increases production—it also decreases abuse to both machine and operator," reports H. C. Patty, Birmingham, Alabama, owner of this concrete-shattering outfit!



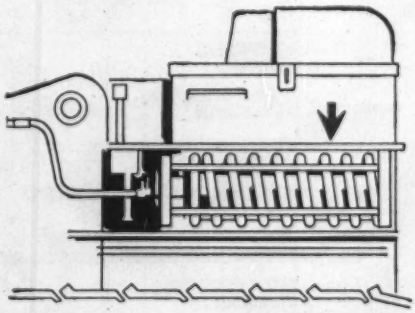
Slam this super-stout bucket into compacted material, and you generate impact stresses that make unprotected front-end loaders shudder!

But International Drott Skid-Shovels smother these shocks enroute, before they can sprain a sacroiliac, strain a track frame, or maim a final drive! Machine-mauling shock stresses "lean" against exclusive Hydro-Spring's "magic cushion"—and they're absorbed!

No Strain! No Pain!

You apply the patented pry-action break-out—and you get up to three times as much material-loosening, bucket-cramming force as the ordinary front-end loader can muster. Even then, shock-swallowing Hydro-Spring wards off strain and pain! *Owners declare that Hydro-Spring adds a whopping 25 per cent to loader and tractor life—reduces downtime and boosts production, too!*

No other front-end loader has Hydro-Spring advantages—which you get in four big-capacity, contractor-proved International Drott Skid-Shovel sizes. Why not ask your International Drott distributor for a demonstration of the money-making size best suited to your needs?



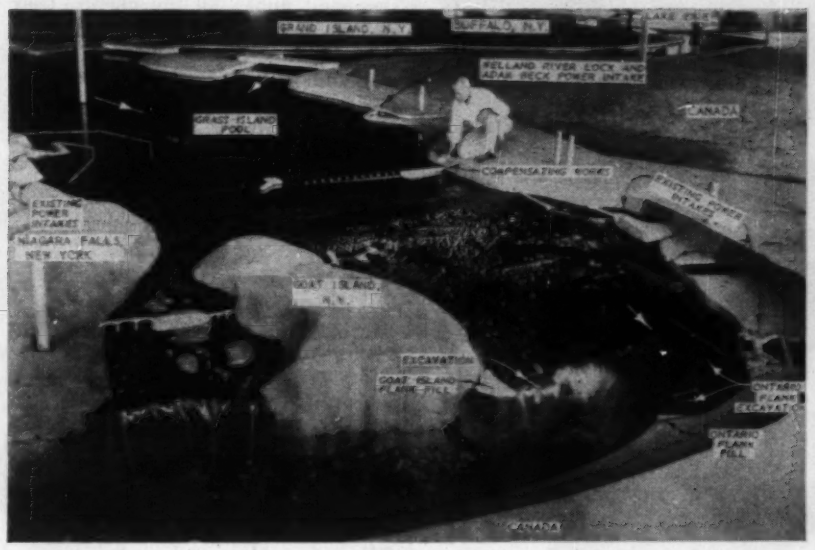
How exclusive Hydro-Spring works and saves for you!

Exclusive Hydro-Spring is a hydraulic cylinder enclosed in a heavy-duty coil spring. Shock force displaces oil from main lift cylinders into the Hydro-Spring cylinder—extending it and compressing the big spring to *absorb* and *cushion* impact loads. Hydro-Spring reduces the consequences of shock forces *by an actual 67 per cent or more*—also eliminates most hydraulic hose failures!

INTERNATIONAL HARVESTER

INTERNATIONAL®
DROTT

READER COMMENT



The Indispensable Model

SIR—The article in the August 25 issue of ENGINEERING NEWS-RECORD entitled "Horseshoe Falls: On a Construction Anvil" was read with much interest at the Corps of Engineers Waterways Experiment Station, Vicksburg, Miss., for it was here and at the Hydro-Electric Power Commission's laboratory at Islington, Ont., that models of Niagara River and Falls were used to develop plans for the remedial works and the construction program now in progress.

The Waterways Experiment Station model of Niagara River and Falls (see photo) was constructed for the Buffalo District and North Central Division, Corps of Engineers, in 1950. Extensive investigations were made under the general supervision of the International Joint Commission and the International Niagara Board of Engineers to discern the nature of and assist in the design of remedial works necessary (a) to preserve and enhance the scenic beauty of Niagara Falls, and (b) to compensate for the effects of additional diversions of water for power purposes.

The readers of ENGINEERING NEWS-RECORD will be interested to know that the model was used to develop the plans for excavations on both flanks of the Canadian Falls, and to check the performance of the completed excavations prior to removal of the cofferdams.

A. P. ROLLINS, JR.
Colonel, Corps of Engineers
Director, Waterways
Experiment Station
Vicksburg, Miss.

Engineering News-Record welcomes expressions of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

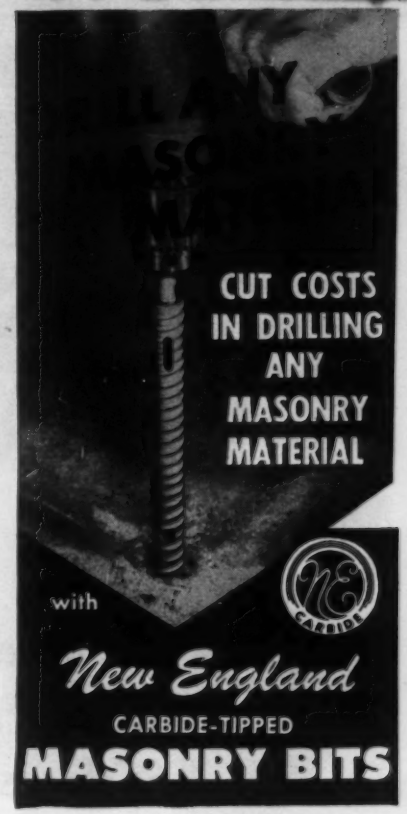
Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Better Architects

SIR: Leo F. Caproni's letter (ENR Oct. 6 1955, p. 6) illustrates perfectly the attitude of most "businessmen-architects" who manage large offices. By using "plain ordinary architectural draftsmen", products of a "trade school movement", or very little formal training, such offices turn out a great deal of mediocre work ("baked" buildings, as William Zeckendorf calls them) at maximum profit to the principals.

I dispute Mr. Caproni's attitude toward the profession, his attitude toward young architects, his attitude toward "modern" architecture (what reader of ENR would design anything in other than modern materials, equipment, appearance, etc.?), and his attitude toward your excellent editorial "Better Architects, Better Building (ENR Sept. 22, 1955, p. 64). All of us need more education, not less.

Having three degrees in engineering and architecture from MIT, and having "rolled up my sleeves" in organ-



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READER COMMENT

izations for four years, I set out on my own two years ago. Am doing very well, too. All my clients, thus far, come to me specifically because they want "young ideas". Why shouldn't I, and why shouldn't every professional man who wishes it, set out on his own? I am opposed to large offices in any profession, because I think such agglomerations lack completely the essence of "professionalism"; personal intellectual services to a client (no matter how big the client, I may add). If Mr. Caproni can't keep young graduates very long in his office, it is he who needs to change, not the young men in architecture. May they always be young in spirit, and always seeking more education, not less.

STANLEY JAMES GOLDSTEIN
Architect & Engineer
East Orange, N. J.

Piles for Heavy Loads

SIR: In the article "Steel Pipe Factory Is Built of Pipe" (ENR Aug. 18, 1955, p. 49) the displacement caisson type concrete piles mentioned were installed by our affiliate company, Franki Compressed Pile Company of Canada Ltd. and were used only for the heavy design loads. The text as written does not make this clear.

LEON A. FRAIKEN, PRESIDENT
Franki Foundation Co.
New York, N. Y.

[Editor's Note: Mr. Fraiken is right. The word "elsewhere" was omitted. The sentence should have read, "Elsewhere, concrete piles were used—of the displacement caisson type, of 8, 10 and 22 in. diameter, with the latter designed for loads of 110 tons."]

CALENDAR

American Concrete Pipe Association, short course school of instruction, Chase Hotel, St. Louis, Mo., Nov 14-16.

Nuclear Engineering and Science Congress, sponsored by the Engineers Joint Council, Public Auditorium, Cleveland, O., Dec. 12-16.

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, National Research Council Building, Washington, D. C., Jan. 16-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

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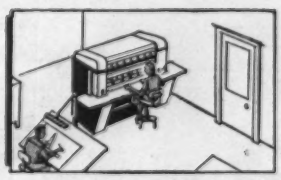

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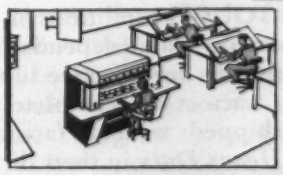

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

SPEECH OF THE WEEK—Last week the ASCE brought to its annual meeting in New York the usual number of speeches, dissertations and corridor caucuses, (see p. 21). Today, with the echoes dead, the briefest speech of all, given at a dinner staged by the American Institute of Consulting Engineers, stands out for its succinct sincerity and distinct good humor. The speaker—an engineer and holder of other jobs at various times—merely stated how highly he treasured the approbation of his professional colleague, for they are, after all, the best trained at appraisal. The speaker was—Herbert Hoover.

WINDY CITY 'PIKE ISSUE A BREEZE—$415 million worth of bonds for financing 193 miles of turnpikes in the Chicago area have been snapped up by investors. The reasons—an unusually high tax-exempt yield of 3.75% and location of this Illinois Toll Road project in a particularly juicy traffic area (see page 94). The high yield is thought to be based on a number of factors including the tightness of today's bond market, legal hassles and a legislative investigation last spring of the commission handling the project.

ANTEDELUVIAN PLANNING . . . WITH A TWIST—Before the next "Thousand-year" flood can hit—and there have been two in the area in as many months—Massachusetts, New York and Connecticut are looking to replace their temporary bridges with more permanent structures. Quick action is required and the answer appears to lie in prestressed, precast spans. Badly-hit Massachusetts, which lost more than 200 bridges, may replace all of its 60-ft or shorter spans with prestressed girders. Connecticut is considering them for about a dozen of the 150 destroyed while New York—the least damaged—will employ prestressed girders in seven or eight.

NO BACK SEAT FOR CIO—Although the lion's share of the control of the new federation of labor will go to the numerically stronger AFL, last week's meeting of the AFL-CIO Unity Committee (see p. 96) made it clear that the CIO will be a dynamic force behind two of the merger's goals—organization of the unorganized and an effective legislative voice. While CIO's Walter Reuther was stressing the importance of "a practical, effective organizational crusade," the Unity Committee unanimously chose UAW-CIO vice president John Livingston for the significant post of Director of Organization and tentatively assured Jack Kroll, head of the CIO Political Action Committee, the post of co-director of labor's new political division.

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WASHINGTON OBSERVER

Pressure from flood-damaged areas is mounting for some form of federal insurance to offset future disasters.

Democratic Senator Herbert Lehman, N. Y., wants all-out federal insurance, to cover disasters, and even to cover war damage. His $12-billion plan would have the federal government offer protection up to $2 billion for disasters of nature, the remainder for war damage. His proposal will be the basis for Congressional consideration next year.

The Administration is talking about an experimental and modest program to which the government would be liable only for a portion. Assistant Budget Director Roger W. Jones testified this week before a Senate Banking Subcommittee that even this approach is still being studied to determine whether it is feasible.

Private insurance companies probably would be the sellers of policies and settlers of claims. Coverage would not go higher than some $250,000 for individuals or businesses.

•

The Government now has a new estimate of the northeastern flood damage—and it runs only about one-third of the $1.6 billion that the Army Engineers estimated when the worst of Diane was over last August.

Now the Commerce Department says damage was $457.6 million, including in the total industrial and commercial buildings, highways, homes, public utilities, and the like.

Corps of Engineer's estimate was a quickie based on estimates from state officials right after the floods.

•

Congress will be asked for funds for seven new dams in the northeast flood areas. All had been authorized previously, but none had ever gotten money for a start for a variety of reasons, including lack of local support.

Actually, the Budget Bureau still has to approve all this but most experts agree this package will be asked of Congress.

Eisenhower promised a strong flood control program for the area in a letter to the New England Governors a few weeks ago.

•

McKay's visit to Eisenhower produced re-affirmation of the strong public works position the Administration has been taking.

Administration will go all-out for string of new projects including the billion-dollar Upper Colorado storage project, the Fryingpan-Arkansas plan to use water from western slope of the Rockies to eastern Colorado and the Washita Project in Oklahoma.

Upper Colorado Basin states met this week in Denver to work out an agreement to make their pressure on Congress stronger next year. The idea is to bring in people from western Colorado who figure they might lose some water from a diversion that would bring more water into the Denver area.

•

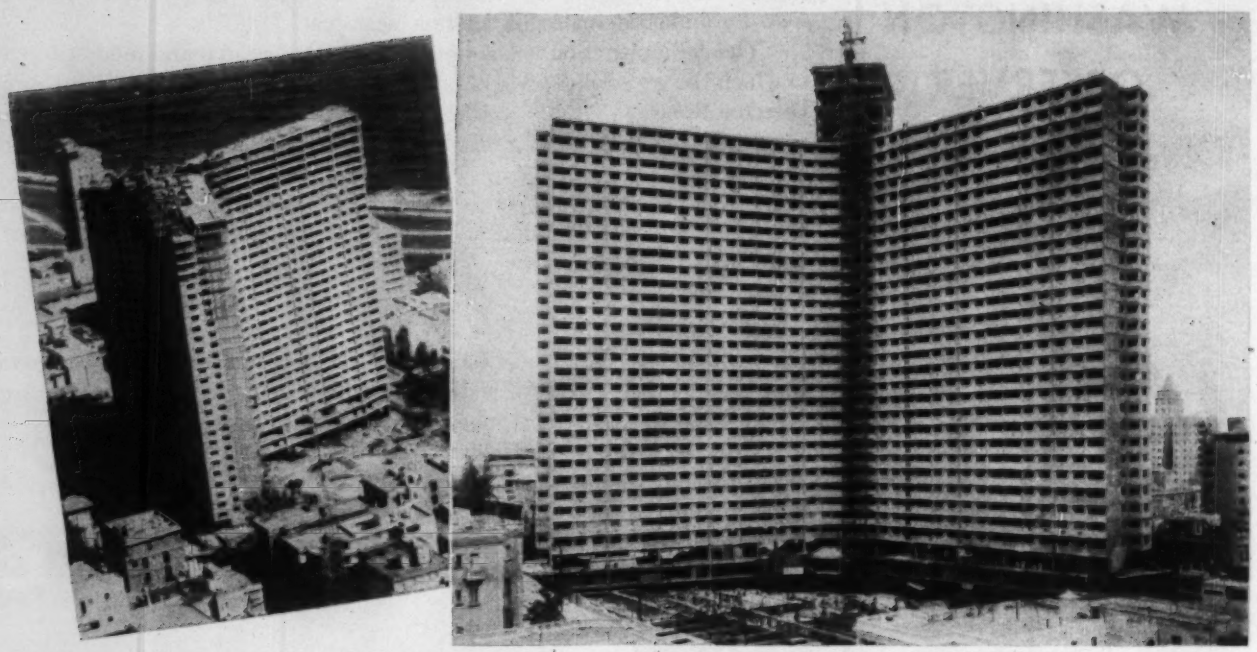
McKay took a new tack in defense of the Administration's partnership policy in his talk to the National Reclamation Association.

For the first time he stressed that the federal government takes over all federal dams at the end of 50 years regardless of the fact that local funds may have financed substantial parts of them.

McKay said Congress can do as it pleases with income from these dams —mainly power—once the 50-year contracts expire. McKay meant, for instance, that these revenues could be used to subsidize new irrigation and reclamation developments rather than returned to the treasury.

This line of argument is a counter to "give-away" charges of the Democrats, which are being stepped up as election day nears.

HIGH AND MIGHTY



Havana Builds World's Tallest Concrete Apartment Building

"17 y M" COOPERATIVE APARTMENT BUILDING
Vedado, Havana, Cuba

Owner:
FOMENTO DE OBRAS Y CONSTRUCCIONES, S.A. (FOCSA)

Architects:
ERNESTO GÓMEZ SAMPERA, MARTÍN DOMÍNGUEZ, BARTOLOMÉ BESTARD, MANUEL PADRÓN

Structural Engineers:
LUIS SAENZ, E. R. CANCIO, IGNACIO MARTÍN

Contractor: PROYECTOS OBRAS Y CONSTRUCCIONES, S.A.

● Nearing completion in Havana's Vedado section is one of the world's outstanding buildings—the tallest concrete apartment house, rising 39 stories, a total of 402 ft. above its footings.

Floors of this high and mighty structure are two-way reinforced concrete slabs. Walls instead of columns support the building's full weight, serve as partitions between apartments and as wind bracing, in a fire-safe, rigid, monolithic structure built to resist winds of hurricane force. The cellular structure provided the architects with ideal clear floor areas.

Framing in concrete saved almost a million pesos, as compared with alternative methods, again emphasizing the economies inherent in reinforced concrete.

With 30 floors of apartments selling at an average price of $20,000 per apartment, and income from rental space on the other floors, the owners will recoup their investment of 6-million pesos (1 peso equals 1 dollar) when 80% of the apartments are sold.

Cuba's designers have a way with concrete, as is well exemplified by this dramatic structure, in which, when completed, a total of over 110,000 bbls. of cement produced by Lone Star's Cuban subsidiary, La Compañia Cubana de Cemento Portland, will have been used.

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ASCE Ponders Manpower and Ethics

Manpower problems—training, recruitment and utilization—were a prime subject for discussion at last week's convention in New York of the American Society of Civil Engineers.

Over 2,000 delegates to the annual meeting heard incoming President Enoch R. Needles picture the civil engineer's part in "revolutionary developments" that he thinks point to a big future for the profession.

President Needles referred specifically to tollroad expansion of the past eight years and called for strong and constructive support for a national highway program in the next session of Congress.

With highway expansion ahead, it was ASCE's Highway Division that properly showed serious concern for the manpower problem. Speakers on an afternoon-long symposium came up with three main points:

- Application of the latest management personnel techniques—principally to provide a professional challenge for college trained employees in their jobs—is one of the key factors in recruiting and keeping personnel in state highway engineering work.
- A second key is the use of sub-professionals or trained technicians to do sub-professional work.
- A third, of course, is salary scales.

These general conclusions were virtually echoed in a session of the Sanitary Engineering Division at which delegates discussed a recently

. . . Problems of training, recruiting and salaries

FOUR-TIME WINNER—Karl Terzaghi, honorary member of ASCE and only man to have won it three times previously, was presented 1955 Norman Medal by President Glidden. The Harvard soils professor's winning paper this time: "Anchored Bulkheads."

published SED salary study. Discussions at this and other SED sessions made clear that the sole purpose of many delegates in attending the meeting was recruitment of engineers for assorted positions.

Panelists presenting different facets of the common manpower problem before the highway division were: Carl E. Fritts, of the Automotive Safety Foundation; Robley Winfrey, of the U. S. Bureau of Public Roads; Hal G. Surs, of the consulting firm of Howard, Needles, Tammen & Bergendoff; S. E. Ridge, of the U. S. Bureau of Public Roads; and Harmer E. Davis of the University of California's Institute of Transportation and Traffic Engineering.

Hammering at the twin points of better utilization of the personnel now available and of management and personnel policies that would make highway jobs attractive, the speakers made it clear that they did not see salary alone as the biggest deterrent—or attraction—for young men graduating from engineering schools and contemplating the highway field as a career area.

More important, they said, is that the job must offer a challenge to the engineers from a professional standpoint; must not keep them employed at menial or routine tasks for too great a time; must provide opportunity for recognition of ingenuity and effort.

In this connection, speakers said that the matter of who does—and what is—professional work, and who does—what is—technician's work, should be a subject for serious study.

On this same line, the panel also suggested careful consideration of new machines and methods—such as electronic computers and aerial photogrammetry—to cut down on time-consuming and ambition-killing routine jobs.

• **Classify professional or technician?**—Closely allied to this suggestion was a significant report of a task committee on the status of surveying and mapping. This report, presented to the Surveying and Mapping Division, does not yet represent the official position of ASCE, but goes into detail in defining and classifying positions within the field as either professional or at the technician or pre-professional level.

In transmitting his task committee's report, Brother B. Austin Barry, surveying professor at Manhattan College, cited the desire that surveying retain its professional stature, yet stated that "to insist every operation is professional is to be unrealistic."

The report separates the traditional position titles—within six categories of surveying and mapping—into professional-level and technician or pre-professional-level listings. And, it significantly considers photogrammetry as a tool, not a category of surveying.

• **Teach science or technology?**—Further concern for the training of engineering manpower was expressed at the convention's conditions of practice session. L. E. Grinter, dean of the graduate school, University of Florida, and past president of the American Society for Engineering Education, stated that there has been a lack of emphasis in the humanities and social sciences in our civil engineering curricula. He added: "We must drop the confused thinking that has accepted technical non-engineering courses such as accounting, business or city management, cost analysis, marketing, finance, engineering economics or ROTC as adequate substitute for humanistic and social courses."

Dean Grinter emphasized that engineers need sound schooling in the basic engineering sciences, and he recommended the inclusion of more math, physics and chemistry in their programs.

The future engineers Dean Grinter discussed—representing at least a partial answer to the manpower problem—turned out in substantial force as the convention's student chapter conference moved into the Statler's ballroom to accommodate close to 400. The amassed students heard Thomas J. Fratar of Tippetts, Abbett, McCarthy & Stratton give guidance on selecting their first jobs.

And in a Construction Division session on "automation" in the construction industry, Contractor Roger Corbetta let go with some off-the-cuff remarks not calculated to endear him to educators of engineers, nor to the engineers now or ever in his employ. Said self-made Corbetta: "I'm sorry to say that we do not look to the young engineering graduates we get for ideas and originality. I'm sorrier to say that too many of these young men are pitiful specimens. My impression is that the colleges spend so much time grinding these young men down to a general mold that they succeed in grinding out of them any originality or daring that they may have had. Give them a job to do and they'll do it—in the most overdesigned most conventional manner possible."

. . . The problem of bidding for professional services

Technical Problems

City planning

City planners of ASCE were posed problems both by the Society's Air Transport Division and by the featured speaker at the annual membership luncheon.

In the first case they were told that a key point which has not received sufficient consideration by city planners in considering airport development is the matter of distance of the proposed site from centers of population.

Addressing the Air Transport Division, James C. Buckley of New York used statistical evaluations at four major airports that were moved further from the centers of metropolitan areas to demonstrate that the distance of the airport from the residence of the prospective traveler has a marked effect on his use of air travel. In every instance, Mr. Buckley pointed out, the air carriers experienced a decided drop in passenger revenue within a period of three years after the airport was moved further from the city.

At the general luncheon session, where four honorary memberships were bestowed (ENR Oct. 27, p. 25), William Zeckendorf challenged planners with creating a belt of recreation and relief around our growing central cities. In his rather severe variation on the "green belt" theme, the president of realtors Webb & Knapp, Inc., warned that the escape to the suburbs has brought about a "fluid suburbia" from which there is no escape. He proposed concentrating the central city in vertical units and surrounding them with a belt of undeveloped country for change of pace.

Structural

When designing reinforced concrete members for impact loads, hard grade reinforcing should be specified rather than intermediate grade. This conclusion was the result of tests described before a combined session of the Engineering Mechanics and Structural Divisions by Profs. F. T. Mavis and M. J. Greaves.

They described tests in which two 6-in. reinforced concrete beams were simultaneously dynamically loaded in the center to failure. Force at the center and at the reactions was recorded on oscillographs. A high speed motion picture camera recorded the failure and

Proposed Change in Code of Ethics

Consulting engineers seeking engagement, as well as officials seeking consulting services, will have a new guide to what is held to constitute improper procedure if a proposed revision to the ASCE Code of Ethics is adopted by the membership. The revision, developed over the past year by the Committee on Professional Practice, relates to Clause 4 in the code.

It is now considered that this clause shall read **"it shall be considered unprofessional and inconsistent with honorable and dignified bearing for any member of the American Society of Civil Engineers to invite proposals for the performance of professional engineering services or to state a price for such services in response to any such invitation when there are reasonable grounds for belief that price will be the prime consideration in the selection of the engineer."**

The present clause merely states that "it shall be considered unprofessional . . . to participate in competitive bidding on a price basis to secure a professional engagement."

Sharp differences in interpretation of the meaning of "bidding on a price basis," leading to confusion as to where the line should be drawn, were behind the attempt at a new wording. The committee concluded that "no definition can be written which will clearly delineate the line between proper competition and that which is not proper" but states that the definition proposed "will afford a basis for each individual member to judge his own conduct. . . . and to act in a manner that brings credit to the profession."

Before undertaking the revision, the committee sent out 283 questionnaires asking the views of engineers in private practice, and received 134 replies. It also sought the views of the 26 members of the Board of Directors and obtained 16 of them. While an undisclosed number of the replies said there should be no restrictions on competitive bidding, the great majority were of the opinion that it is improper to invite proposals or state a price for services before there has been a full consideration of professional qualifications. Armed with this support the committee developed its proposed definition. In submiting it to the Board, the committee noted that "further clarification may be found necessary in the future," but that it would not be wise to delay further to find a "perfect solution."

The committee accompanied the report on its new definition with several significant remarks on what it construes the definition to mean. Thus, were the code provision to be stated in positive instead of negative language it would read in effect that it is proper to invite proposals and state prices when professional qualifications will be given prime consideration. By the same token, the committee states that either solicitation or submission of bids based on published advertising would be a clear violation. It would not be permissible, in the committee's opinion, to request proposals by letter or by statements in a proposal that "it is assumed professional qualifications of the engineer will be given prime consideration." Such qualifications must be the prime consideration beyond any reasonable doubt.

The committee concluded its report by noting that while there may be many borderline cases "any engineer capable of performing the required professional services should be capable of judging whether qualifications or price will be the determining factor in selection of the engineer."

The members of the committee that developed the proposed new code clause were: Raymond A. Hill, chairman, consulting engineer, Los Angeles; N. T. Veatch, vice chairman, consulting engineer, Kansas City, Mo.; Lloyd D. Knapp, city engineer, Milwaukee, A. M. Rawn, chief engineer, County Sanitation District, Los Angeles; Shortridge Hardesty, consulting engineer, New York; Karl R. Kennison, chief engineer, NYC Board of Water Supply; and Herbert C. Gee, consulting engineer, West Palm Beach, Fla.

. . . And problems of technical aspect

the oscillograph record at the same time.

The only difference in the two 6-in.-deep beams was that one had intermediate grade reinforcing, the other hard grade. Failure occurred first in the concrete beam with the intermediate grade reinforcing.

Prof. Mario Salvadori, Columbia University, showed how computation of stresses in domes can be greatly simplified. He takes advantage of edge deformations peculiar to domes formed by revolving a curve around a vertical axis and terminated normal to the horizontal. While the edges of such domes move outward under vertical loads, they do not rotate. Applying this information to the analysis of domes supported on ring girders or cylinders, Prof. Salvadori prepared charts from which dome stresses may readily be obtained.

Waterways

Requirements for bridge clearances over navigable waters were scrutinized in a joint session of ASCE Waterways and Highways Divisions. The concensus was that each bridge should be considered separately and account should be taken of comparative costs and benefits to highway and waterway users. The problem of clearances is complicated, however, by existing federal and international laws and the needs of federally owned defense watercraft. Possible solutions in some cases are adjustable masts on ships or an act of Congress declaring a waterway non-navigable. In other cases, waterway terminals might be moved downstream to eliminate the necessity of providing clearances for ships.

Highways

Although an announced subject of the Highway Division was "Control of Highway Access," only one of five papers presented concerned itself with that problem.

All the others were concerned with the economic aspects of controlled-access highways, and all seemingly provided added support for further construction of this type of highway.

Typical was the opening paper by B. D. Tallamy, chairman of New York State's Thruway Authority, who pointed to tremendous increases in property valuations in areas all along the not quite complete superhighway. Additionally, said Tallamy, the Thruway has been directly responsible for establishment of new manufacturing plants in various parts of the state with a value of more than $150 million, and payrolls of more than $130 million annually. He cited other evidences of increased economic well-being in the state, including a statement from a major over-the-road trucking company that its six-month accident free record on the Thruway has resulted in a substantial reduction in insurance costs.

Engineering Mechanics

Two sessions of the Engineering Mechanics Division were devoted to papers on the subject of nuclear bomb blasts. The purpose of this work is to develop a manual so the designer will be able to design for blast effects.

It was pointed out that not only are examples of actual blasts limited, but much information on the subject is under government security regulations.

In brief, here are some of the facts revealed in the papers and discussions:

- Designers are principally considering two design cases—(a) The building with frangible walls where the drag created by the blast effect will cause the destruction, (b) The "solid" wall building where the force of the blast is taken by the walls themselves.
- Since the energy needed to take structural steel to rupture is of the order of 100 times that required to make it yield, limit design should be used for blast design with a safety factor of one.
- Shock front of the blast wave travels at supersonic speed.
- In blast, frame structures stand up better than wall-bearing, and circular-shaped buildings or members will withstand the effect better than rectangular.
- A typical pressure wave varies with time as an exponentially decreasing curve varying from a positive pressure to a negative of lesser magnitude but of three or four times the duration of the positive phase. Designers are approximating this with a triangular graph of pressure versus time.
- Thermal radiation from the bomb travels with the speed of light. They have found that the degree of housekeeping around a building has often been a decisive factor as to whether the building will catch fire or not.
- Nuclear radiation does not effect the buildings, only the personnel. Its effective radius is less than that of thermal radiation.
- Bombs now under consideration are in the megaton, not kiloton range, that is they are equivalent to millions of tons of conventional TNT. Sample characteristics of a bomb in this range might require designing for an overpressure of 10 psi for a time duration of 5-10 seconds. This pressure would destroy nearly all present-day structures.

Sanitary Engineering

William T. Ingram, adjunct professor at New York University, reported on the results of investigation into treatment of settled domestic sewage in a sectional trickling filter of unusual design under controlled laboratory conditions.

The experimental unit was constructed in the laboratory of six 3-ft sections of 12-in. asbestos-cement pipe, mounted on separate base plates, each filter section was connected to its base plate with a collar drilled to provide inlet, outlet and air connection on collar. Each of the six sections was filled with 1½- to 3-in. filter stone. Total flow of sewage was measured through a calibrated wire and pumped to the filter, with feed through sections other than the top of the filter metered through calibrated flow meters.

Extensive runs showed that this controlled method of filtration in a hypothetical plant 25 ft in dia. and 18 ft deep would fulfill removal requirements of a 6-ft deep standard filter with 24 times the area and eight times the rock volume. Ingram's conclusion was that on the basis of present studies, it may be presumed that application of controlled filtration principles makes possible the functional design of trickling filters greatly reduced in filter area and volume, yet capable of producing effluents of quality equal to or better than those required by present standards.

ASCE Board Actions

In addition to approving the Code of Ethics revision for submission to membership vote, the Board of Direction took several other actions of broad interest. It decided to abolish the Society's Washington office, and to handle necessary national capital business from the headquarters in New York. It appointed a task committee to study the feasibility of expanding the Society's services to its members in the economic as distinct from the technical field, a proposition which has as one facet a possible change in the Society's favorable tax status. And, it passed a resolution encouraging local sections of the Society to participate in regional federations of engineers, which can under the new constitution of Engineers Joint Council, affiliate with that organization.

Materials Controversy May End as . . .

Connecticut 'Pike Gets Two Types of Paving

The controversial question of whether the Connecticut turnpike should be paved with bituminous concrete or Portland-cement concrete was answered last week by State Highway Commissioner Newman E. Argraves. The solution: both types of paving will be used.

The first 53 miles of the turnpike from the New York State line near Greenwich to Branford, east of New Haven, will be paved with Portland-cement concrete. From Branford to the Rhode Island State line, the turnpike will be paved with bituminous concrete with certain exceptions.

Bituminous concrete will not be used where existing two-lane Portland-cement concrete highway is to be widened to four lanes or where some contracts for Portland-cement concrete are now in force.

Argraves announced the change in plans after lawyers for the Connecticut Turnpike Commission decided that the highway commissioner has the right to decide whether to use bituminous concrete or Portland-cement concrete on the $400-million tollroad. The state attorney general and an outside law firm also concurred.

Commissioner Argraves' right to choose between the two paving materials was challenged by bondholders who said the bond prospectus "specifically said the road would be built with concrete." Bondholders protested when the highway department announced it was taking alternate bids for a three-mile link of the highway near Milford, Conn. (ENR Sept. 29, p. 71).

But alternate bids will not be asked in the future, Argraves said. Advertising for bids will call specifically for either bituminous or Portland-cement concrete paving.

• **Design problems**—Commenting that alternate designs had been developed to meet traffic demands on the turnpike, Argraves said that structurally either bituminous or reinforced concrete pavement is acceptable.

Despite lower prices for bituminous concrete bid on the Milford link, other factors had to be considered, Argraves explained.

In deciding between bituminous concrete and Portland-cement concrete, the highway commission weighed advantages and disadvantages of the two materials in the light of certain problems:

• Greatest traffic volume will be from the New York line to Branford, east of New Haven.

• Bridges and other structures are closely spaced from Greenwich to Branford. Average distance between structures is 1,500 ft. through cities, the structures may be only a few hundred feet apart from Branford to the Rhode Island state line. However, the average distance between structures is greater. (Concrete paving will be used where the structures are close together.)

• **Which stands up better?**—Argraves also tackled the triple problem of maintenance, durability and load capacity.

Dealing with the first of these, Argraves said maintenance costs available from various state highway departments are not broken down in sufficient detail to accurately determine over a period of many years which type of pavement has the lower maintenance cost.

Improvement in both Portland-cement concrete and bituminous concrete make a clear-cut assessment of the durability of the two materials difficult, he explained. Recent developments in Portland-cement concrete paving, using air entrainment, indicate that properly constructed concrete pavements of today are superior to those of a decade ago. And, the same is true for "blacktop," according to Argraves, because of the development of automatic asphalt mixing plants and mechanical spreaders.

And, on the matter of load carrying capacity, the Connecticut Highway Commissioner asserted that empirical formulas developed for determining such capacity should be considered only as guides. Capacity of a pavement may best be determined by experience and observation, he added. (It had been contended on the section where alternate bids were received that the bituminous design was figured for axle loads of only 18,000 pounds as against 30,000 pounds for the concrete design.)

• **Other factors**—Capacity is only one element, according to Argraves. Among the other considerations:

• Portland-cement concrete pavement has a bridging action, while "blacktop" has the ability to "give" with the load to fit the supporting capacity of the subgrade.

• It is easier to repair and eliminate roughness in bituminous concrete pavement than in Portland-cement concrete pavement.

• Bituminous concrete pavement "probably" causes less glare on bright, sunny days.

• It is desirable to apply calcium chloride during sanding to prevent the sand from icing. But it is the policy of the Connecticut State Highway Department not to apply calcium chloride to air-entrained concrete pavements during the first year after they are constructed because of possible detrimental effect.

• Concrete pavement apparently is superior at toll plazas where there are oil and water drippings. Rippling of flexible surfaces has been noted at these points because of tractive effort during accelerations and decelerations.

• Connecticut State Highway Department experience indicates that frost and freezing produces a slipperier surface faster on Portland-cement concrete than on bituminous concrete.

• Construction season for both types of pavement is approximately the same.

• Where Portland-cement concrete bridge decks are spaced at relatively close intervals, it is advantageous from a maintenance standpoint to have the same type of surfacing throughout.

Boston Expressway

Work to start on another Central Artery section

A $13.6-million contract for construction of a 2,400-ft depressed-highway section of the Boston Central Artery has been awarded V. Barletta Co. of Boston. Work is scheduled to start Nov. 15 and take two and one half years to complete.

The six-lane section, 80 to 100 ft wide, will run between Congress and Kneeland Sts. It will provide ramp connections to outer drives leading into the heart of the downtown shopping area.

The $100-million Central Artery, now well along in construction between North and South Stations, eventually will ring downtown Boston (ENR, April 22, 1954, p. 45). Under a master plan, the artery will serve as an inner hub belt line and Route 128 will be an outer rim speedway. These two routes will be connected by such spokes as the Massachusetts Turnpike and a system of expressways running into the distant suburbs.

Doomed: 26 Narrow, Obsolete Piers . . .

. . . Planned: 10 More Efficient Piers

The Port of New York Authority's plans for an $85-million marine terminal development along two miles of Brooklyn waterfront moved a step closer to fulfillment with the reaching ing of an agreement to purchase the site from the New York Dock Co. for just under $14 million.

With closing of title schedules for early next year, the PNYA released details of its plans for the Brooklyn project, which it had announced previously (ENR, July 7, P. 25). These call for replacement of 26 of the existing, obsolete piers, from 36 to 65 years old, with 10 single-story, wide fire-resistant structures.

While the new piers will provide only 25 vessel berths instead of the present 44, cargo-handling capacity will be greater, because of increased efficiency of ship handling, speeded ship turnaround and better usage of trucks. The new facilities will handle about one-fourth of the port's foreign trade general cargo, compared with 17% handled today.

In addition to replacement of existing piers, a 50-acre upland area, now occupied in part by old multi-story warehouses, will be cleared. In this area will be provided 250,000 sq ft of storage in one-story warehouses and 45 acres of paved area to accommodate cargoes and handle 3,000 trucks per day. These facilities not only will offer more efficient storage but will relieve adjacent streets of congestion.

The site fronts on 40-ft-deep Buttermilk and East River Channels, extending southward from a point near Brooklyn Bridge (at right in pictures).

First project will be a $7 million, three-berth quay, 2,000 ft long by 270 ft wide, with a 1,800x150-ft one-story shed. Construction is scheduled to begin next July, to be completed by the end of 1958. The remainder of the development will be built over a seven-year period, to avoid disruption of present operations.

Most of the new piers will be of the finger type, similar to Piers A and C in Hoboken, N. J., which have a prestressed concrete deck. Total shedded area will exceed 2,000,000 sq ft, compared with the existing 1,500,000 sq ft. Aprons 20 ft wide and extensive truck service areas will be provided at each facility. Slip space will be increased from 200 ft to 300 ft to expedite ship-handling.

Pier decks will be 12 ft above mean low water, though most of the piers in the New York Harbor are about 10 ft above.

Filter Plant Phase

20-acre reservoir project is next on Chicago's list

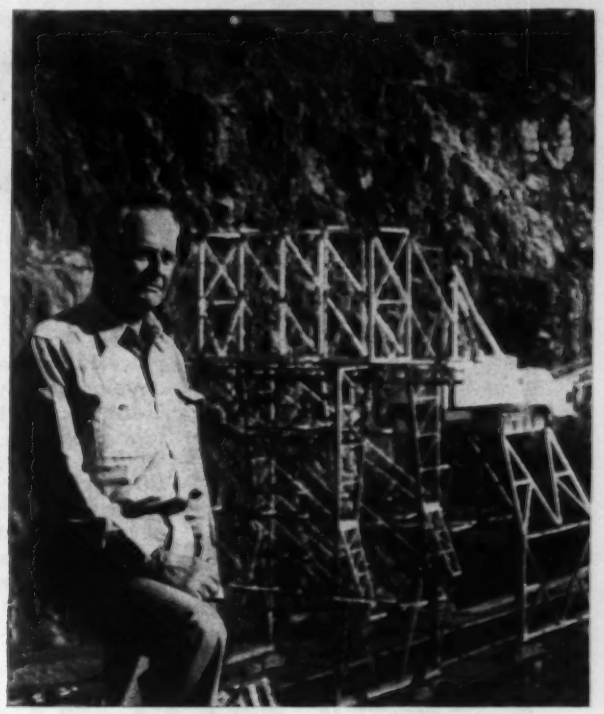
Herlihy Mid-Continent Co., Chicago, has submitted the low bid of $3.9 million for construction of a 68,000,000-gal reservoir for Chicago's new filtration plant being built north of Navy Pier.

The reinforced concrete reservoir will cover 20 acres in the west portion of the 68-acre plant site, which is located inside a cofferdam in Lake Michigan. It will have a floor elevation 10 ft below normal lake level. And it will have a clear inside height of 21 ft and a 12-in. roof slab covered with 18 in. of earth fill for landscaping.

This will be the third major contract in Chicago's $85-million program to build a 950-mgd filter plant. The facility is designed to serve more than 3,000,000 residents in the central and north areas of the city and its suburbs.

The first major contract, for construction of the cofferdam enclosing the area, was awarded in May, 1952, to Great Lakes Dredge & Dock Co., Chicago, on its low bid of $6.5 million (ENR June 19, 1952, p. 52). The second main project involves six miles of large-diameter tunnels to connect the new filter plant with the city's water system (ENR, June 23, 1955, p. 32). This is now being built under a $12.7-million contract awarded a construction combine: Grafe-Callahan Construction Co.; Mittry Contractors; Tecon Corp.; Johnson, Drake & Piper, Inc.

Tunnel Expert Howard King



Dambuilder Harvey Slocum

Top Construction Men Honored by The Moles

Two top construction men—one of whom is at the moment engaged below the bottom of the Hudson River in New York and the other at work on a dam in India—have been named as recipients of the annual Moles Award.

The honors, awarded each spring by the Moles, New York fraternal order of heavy construction men, will go to Howard King, a member of the organization and long identified with tunnel construction, and Harvey Slocum, a non-member who is the world-famed builder of large dams now supervising construction of Bahkra Dam in India.

Mr. King, 65, is now vice president and chief engineer of Mason & Hanger Co. of New York, one of the three firms in a joint venture that is at present building the underwater sections of the third tube of New York's Lincoln Tunnel. Holding a civil engineering degree from Columbia University, Mr. King was an engineer for the New York City Transit system for many years prior to World War I, served in that war as a member of the 27th Engineers, and on his return was employed on construction of the Holland Tunnel. He joined Mason & Hanger on completion of that milestone structure, and has remained with the firm continuously since that time. During this long period he was prominently involved in construction of the two original tubes of the Lincoln Tunnel, the Brooklyn-Battery Tunnel, and others.

Mr. Slocum, now 68, it appears is confidently expected by the Moles to fly back from India to receive his award. A native of California, he has been connected with the construction industry since 1910, working upward from the grades of laborer through those of skilled construction craftsman to job superintendent. Since 1917, his name has been connected with such notable structures as the Hetch water supply system; Madden Dam on the Panama Canal; Grand Coulee, Friant, Davis and Bull Shoals Dams. Additionally, during World War II, he turned his talents to bulling through such diverse projects as a section of the Alcan Highway, coal stripping and mining operations, and the Apra harbor breakwaters on Guam.

California Maps Record Highway Budget

A record $247.3-million construction budget has been adopted by the California Highway Commission for the 1956 fiscal year.

The budget—some $23 million over last year's—includes $163.3 million for major work and $83.9 million for acquisition of rights-of-way for future projects.

The new program affects nearly 300 mi of state highways and provides for 45 bridges as well as 165 other structures. About 135 mi of the proposed road projects involve full freeways. These improvements will bring California's total of freeways to more than 500 mi. In addition, 65 mi of proposed expressways and similar projects will increase California's total of multilane divided highways of all types to nearly 1,900 mi, or some 13.5% of the 14,000-mi state highway system.

The largest single project listed, estimated to cost $6.8 million, calls for grading, paving, and structures for a 6-lane freeway running 4.9 mi south of Hilltop Drive in Hercules to north of the city limits to connect to the beginning of the Carquinez toll bridge.

The budget also sets up:

- $5.8 million for 9 mi of the Eastshore Freeway, from Warm Springs to Beard Road in Alameda County. This will complete 38 mi of freeway between Oakland and San Jose.
- $5.3 million for a 1.2-mi section of the 8-lane Embarcadero Freeway in San Francisco. This stretch will run from Fremont St. to Broadway.
- More than $13 million for freeways in Los Angeles County. Some 6.4 mi will be added to Ventura Freeway and 2.7 mi to Golden Gate Freeway.
- $42.4 million for acquisition of rights-of-way for highway routes in Los Angeles County.

Construction of some of the newly-budgeted projects will get a faster-than-usual start because of a new law passed at the 1955 session of the state legislature.

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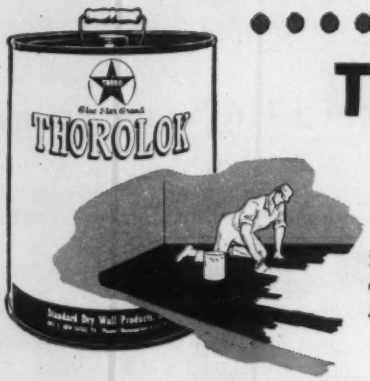

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Rear Adm. R. H. Meade

New BuDocks Chief

Director of Construction for Spanish bases gets Navy's CEC appointment

Next week Rear Adm. Robert H. Meade will return from his post as director of Spanish Bases construction to be sworn in as chief of the Navy's Bureau of Yards and Docks.

His appointment by President Eisenhower is to the post left vacant by the death of Rear Adm. John R. Perry (ENR Oct. 6, p. 26).

The 50-year-old Civil Engineer Corps veteran has been in Spain with the Joint U. S. Military Assistance Advisory Group since December, 1953. He served first as Officer-in-Charge of Construction for BuDocks contracts, and later as Deputy Chief for Construction and Director of Construction.

Admiral Meade leaves Spain with construction of the bases well advanced. Now he'll take charge of a bureau that has $400 million worth of new construction and maintenance work still to be done under uncompleted contracts. In addition, proposed projects in various design stages add up to an estimated $500 million, and anticipated maintenance totals about $100 million.

No staff changes are planned by the new chief. Capt. Joseph A. McHenry will continue to serve as Deputy Chief, and other BuDocks officers will remain in their present posts.

Admiral Meade has had 26 years experience with the Civil Engineer Corps. He was graduated from the Naval Academy in 1926, took civil engineer training at Annapolis' post-

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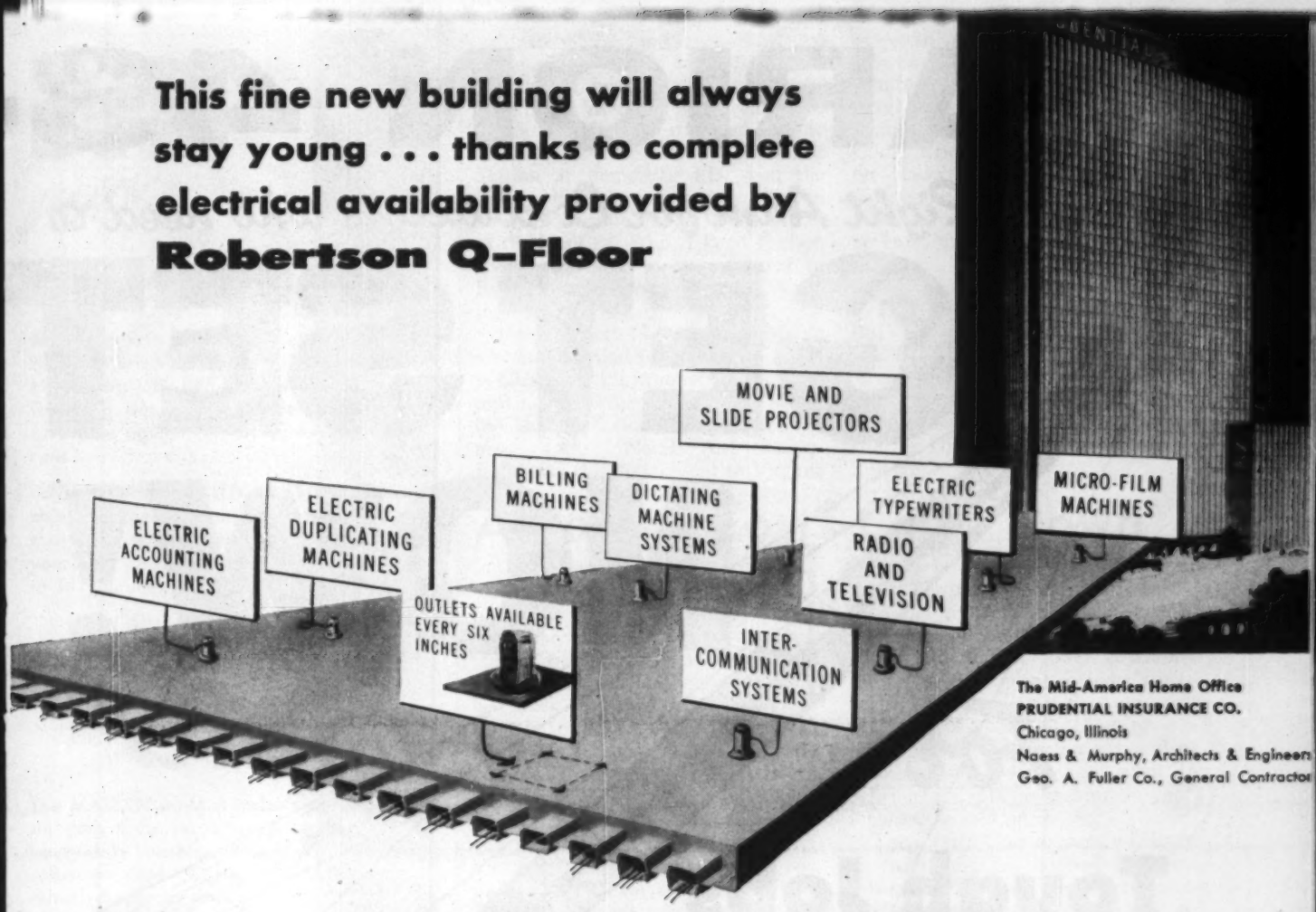

The Mid-America Home Office
PRUDENTIAL INSURANCE CO.
Chicago, Illinois
Naess & Murphy, Architects & Engineers
Geo. A. Fuller Co., General Contractor

The new Mid-America Home Office of The Prudential Insurance Co. of America was designed with an eye toward the future. To meet the ever-increasing wiring requirements of modern electronic office equipment, architects Naess and Murphy prepared the structure to handle the highest electrical load of any office building ever built. To do this job easily and to permit power and telephone outlet changes and additions at minimum cost, Robertson Q-Floor construction was used.

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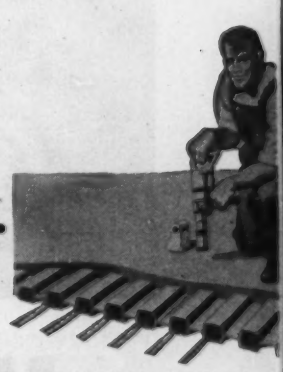

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MARION 362	1½	37
MARION 372	—	43
MARION 83-M	2	60
MARION 87-M	—	75
MARION 93-M	2½	80
MARION 101-M	3	84
MARION 111-M	4	169

*Rated at 10' in accordance with gene

graduate schools, and received his civil engineering degree from Rensselaer Polytechnic Institute.

Early in his career he served in the Public Works Departments at the New York Navy Yard, the Naval Air Station at Pensacola, Fla., and the Marine Barracks at Quantico, Va. In 1937, he became Public Works officer of the Fleet Air Base at Pearl Harbor. Two years later he was assigned to BuDocks' aviation section in Washington headquarters.

From 1940 to 1942, Admiral Meade was Public Works officer and Officer-in-Charge of construction at the Jacksonville Naval Air Station, and Officer-in-Charge of Construction at the Norman, Okla., Naval Air Station. Following this he was sent to Virginia as executive officer of the Naval Construction centers at Camps Allen, Bradford and Perry.

In 1943 he reported for duty as Officer-in-Charge of the First Naval Construction Battalion Brigade based on Alaska and the Aleutian Islands. Two years later he went to the Philippines as Officer-in-Charge of the Seventh Naval Construction Battalion Brigade.

Upon his return to the U. S. late in 1945, Admiral Meade was assigned to BuDocks headquarters in Washington, D. C. He served first as Director of the Finance and Operating department, then as Assistant Chief of the Bureau for Business Management, and later as Director of Naval Petroleum Reserves.

A-Power: Costs Come Down

Cost of electrical power from nuclear energy is on the verge of becoming competitive with power from conventional sources.

This conclusion is unavoidable on the basis of facts and figures presented last week in New York City at the Fourth Annual Conference on Atomic Energy in Industry, sponsored by the National Industrial Conference Board.

Examining the trend in nuclear power costs, R. D. Maxson, senior vice president of Commonwealth Edison Co., for one, offered this rosy picture: total plant costs as estimated in 1952 reflected uncertainty by the wide scattering of unit costs—$300 to $800 per kw. This band in 1955 has narrowed so that an average of $250 per kw can be used.

"Operating and maintenance costs," Mr. Maxson continued, "though still difficult to assess, have shown significant decreases in the estimates of total required manpower over 1952 estimates. Operating data based on experience is not available . . . assuming that costs other than for the uranium itself (such as fabrication and chemical processing) can be made small, nuclear fuel is competitive."

• **Economy in bigness**—Maxson and other speakers called attention to the fact that for nuclear plants fixed charges are a high percentage of the total unit costs. Therefore, they concluded, the larger a nuclear plant the lower unit costs of power will be. For example, Maxson estimated that power from a 180,000-kw nuclear plant would cost 10 mills per kwhr compared with 21 mills for power from a 28,000-kw nuclear plant.

But small nuclear plants are far from being considered out of the running. W. D. Leggett, Jr., vice president, Alco Products, Inc., whose firm has just started construction of a 2,000-kw package reactor for the Army at Ft. Belvoir, Va., had this to say:

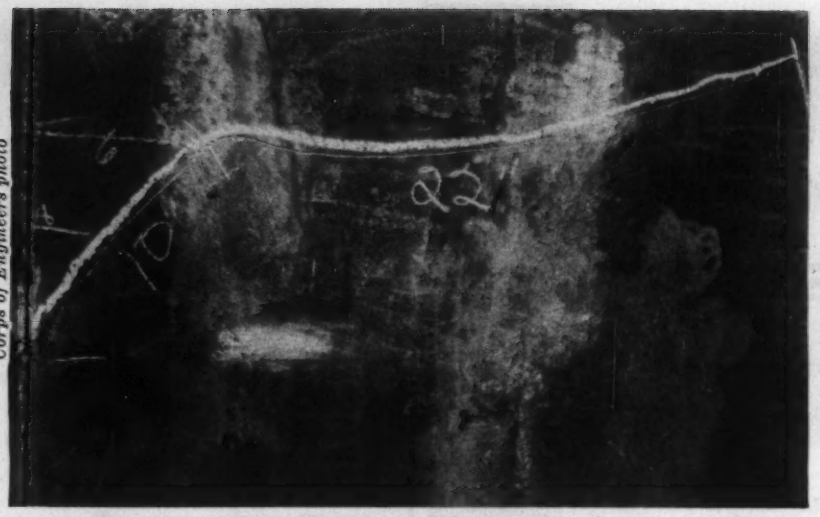
"I did some rather rough calculations on the cost of nuclear power plants and nuclear power generation for a 10,000-kw plant in today's market . . . we came up with a total cost per kwhr of about one-third to one-half higher for the nuclear power plant than for a powdered coal plant in Schenectady. These figures are not, I believe, overly optimistic."

The French Commissariat a L'Energie Atomique has ordered this year two 30,000-kw gas-cooled graphite-moderated reactors. According to P. A. Herreng, director, Laboratories, Societe Alsacienne de Constructions Mecaniques, the whole reactor block will be enclosed in a prestressed concrete tank, which will provide simultaneous resistance against pressure and protection against radiation. The 10-ft thick tank will be made gas-tight by lining the inside of the concrete tank with stainless steel.

Canada is constructing a demonstration nuclear power plant in Ontario, reported Harold A. Smith, Coordinator, Nuclear Power Group, Hydro-Electric Power Commission of Ontario. It will use heavy water as moderator and coolant. Capital cost is estimated at $550 per kw.

In the U. S., said S. Untermeyer, of the Atomics Products Division, General Electric Co., the first decade of the atomic age saw a winnowing process in which thousands of operable reactor designs were culled to select a few promising types and pilot models were built by the government. Even before completion of this program, industrial firms scheduled construction of plants up to 100 times larger than these pilot models. Over two-thirds of this scheduled industrial capacity will use heterogeneous (solid-fuel water-cooled) reactors.

Building the Garrison Dam on the Missouri River at Riverdale, N. D., has hit an expensive snag . . .



Corps of Engineers photo

Problem:

EXCESSIVE WELDING STRESSES caused the formation of cracks up to 32-in. in length, in the 1¼-in. and the 1½-in. thick plates of penstocks and risers. Cut-out line for stress-relief (at left) passes through one end of crack.

Welding Stresses Crack Penstocks

Locked-in stresses from welding heavy steel plates can build up to incredible proportions. Ofttimes they produce unpredictable and devastating results, since the magnitude and direction of the stresses and strains induced are not subject to precise determination.

That's what happened at Garrison Dam on the Missouri River at Riverdale, N. D. where failure by cracking occurred during welding of large diameter pipe risers connecting the power penstocks to surge tanks above. Focal point of the trouble was where the risers lead from the penstocks to the surge tanks.

• **Costly repairs**—Remedial measures are costing an estimated $1.5 million while production of hydropower, scheduled to begin this summer, will be delayed at least four months.

As shown in the accompanying composite sketch—prepared from project design plans of the Corps of Engineers—the penstock-riser-surge tank assembly has gigantic proportions. The penstocks are 24-ft dia and about 290 ft long from face of downstream tunnel portal to the wall of the powerhouse. There are three of these welded steel-plate penstocks under construction, each of which conducts water from its power tunnel to an 80,000-kw generator.

Each power tunnel has two surge tanks—considered to be more economical than building a single tank for each penstock. The twin tanks are 65-ft dia and 135 ft high, fabricated of welded steel plate up to 1½ in. thick. They are supported on a reinforced concrete platform 80 ft above the centerline of the penstock.

Connection to the penstock is made by a vertical tee which branches into a separate riser for each tank. The stem of the tee is 24-ft dia, the same as the penstock, while the riser branches reduce to 16 ft dia. The risers are fabricated of welded steel plate ranging in thickness from 1½ in. at the junction with the penstock to ⅝ in. at the connections to the surge tanks.

• **A complex design**—Because of the complex problems involved in the design of the risers, the Army Engineers turned to an outside specialist—the Charles T. Main Co., Boston, Mass., which also designed the powerhouse and the penstocks for Garrison.

The design used was one that employed heavy yokes made up of diagonal and vertical grider-bracing at the plate corners and through the crotch of the wye formed by the two risers, to brace these points against the stresses involved. These yokes were of heavy welded steel plates and shapes.

At each of the three reinforcing girders the 1½-in. plates of the riser stem and the 1¼-in. plates of the penstock were welded to a 6-in. dia bar. These bars also provided space for attaching the 1¾-in. thick plate webs.

Because of Garrison's size, this reinforcing assembly got pretty sizeable. The yoke at the crotch of the riser assembly is 56 ft high, with its top 43 ft above the centerline of the penstock. At its widest, the web measures 10 ft 3 in., while its minimum width is 3 ft.

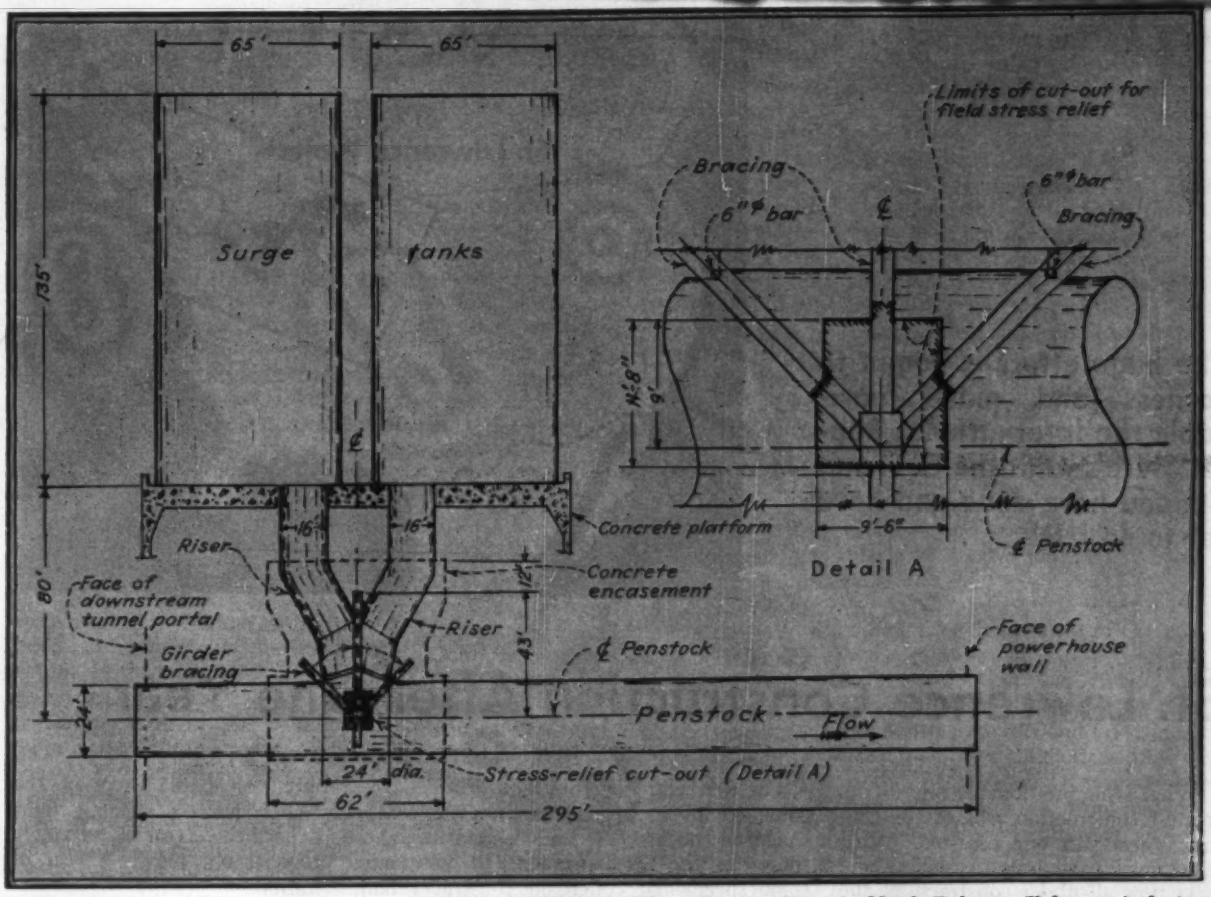
The dimensions were so big that the assembly had to be field erected. Each assembly was built up of many pieces. For example, there were 11 separate pieces in the web assembly alone. At least 20 pieces had to be put together with full-strength welds in the assembly of the riser at its junction with the penstock.

Welding such as this, especially under field conditions, sets up tremendous stresses. Moreover, it was complicated by the complex pattern of curvatures involved in the design. The pieces acted as wedges and levers as the welding process applied the stresses.

• **Unpredictable cracking**—The result was cracking. Some of the cracks came suddenly while workmen were on the job. They occurred with a sharp noise that sounded like a cannon explosion. At other times, workmen would go off shift, only to find new cracks had formed when they returned. Some of the cracks in the heavy steel plates were nearly 3 ft in length.

The first cracks occurred in the vicinity of the intersection of the diagonal reinforcing yokes just above the centerline of the penstock. Because of this it was assumed that the locked-in stresses were encountered in this area, and radiated outward. Engineers figured if stresses were relieved at this focal point the design would stand up.

• **Stress relief**—Accordingly, these stresses were relieved by cutting out an area of the penstock and riser about 9 ft 6 in. by 11 ft 8 in. in size (Detail



Answer: **HOW BIG PENSTOCKS at Garrison Dam in North Dakota will be repaired after cracking at surge tank connection. Cut-out for stress-relief, rewelding in place, and concrete encasement are costly remedial measures.**

A) including the corresponding parts of the attached girders.

The cut-out was stress-relieved by annealing in a furnace and welded back in place. Prior to erection the reinforcing girders had been stress-relieved in shop-fabricated sections.

• **More cracking**—This experiment failed to halt the cracking however, indicating that the excessive stresses were everywhere present. Redesign seemed called for.

The Army Engineers turned to P. P. Bijlaard, professor of structural engineering, Cornell University, who has had extensive experience in complicated structures of this type.

Prof. Bijlaard recommended encasing the entire fabricated steel connection at the tee-shaped junction of the penstock and risers in reinforced concrete. As shown in the accompanying drawing, this concrete encasement extends 62 ft along the penstock and is carried up to the top of the elbows of the risers, about 55 ft above the centerline of the penstock.

In this arrangement the reinforced concrete encasement provides strength while the principal role of the steel plate penstock and risers is reduced to that of a liner plate against water leakage.

It is this work that is now going on. The encasement is quite an extensive job, requiring about 7,000 cu yd of concrete in the first three penstock-riser units. The encasement work on unit No. 1 is nearing completion. That on No. 2 is about half done. And the No. 3 encasement is in its initial stage.

• **Heavily reinforced**—Reinforcement for the encasement concrete is mainly 2¾-in. dia bars with welded splices. At the tee connection three layers of bars are used at 9-in. spacing in each layer. They form continuous loops which pass around that part of the penstock below the diagonal girder bracing, through the webs of the girders and horizontally around the sides of the riser stem.

The reinforcement of the riser branch encasement is designed to resist internal water pressure and to furnish a tie between the two branches.

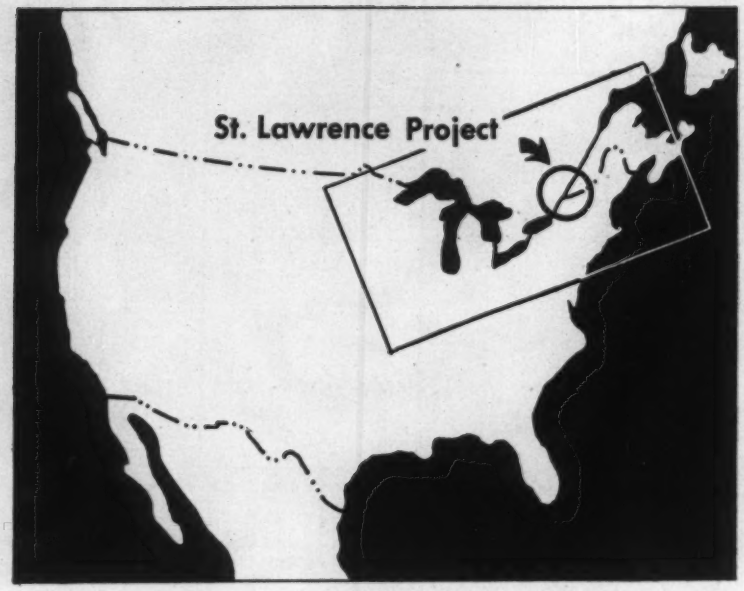
Although the design's shortcomings showed up in Unit No. 1, work on Units 2 and 3 went ahead because the component parts had already arrived at the damsite and were partially assembled. When Units 4 and 5 (the final two penstock-riser-surge tank assemblies) are constructed, the reinforcing yokes probably will be left off and a more heavily reinforced concrete encasement used.

• **Delayed power**—Aside from the cost, the situation has had consequences on power scheduling. Originally it had been planned to produce power at the newly completed Garrison Dam as soon as water in the reservoir climbed to the power pool level.

This level was reached last August, and power commitments were on that basis. Now, however, power won't be available at Garrison until the first unit comes on the line next January and the second unit in February.

As a consequence, firm power commitments at Garrison will have to be met in the intervening period by interchange or purchase of power. At Fort Randall Dam, which is being hooked to Garrison by a power grid, it has been necessary to delay firm power service to new customers until Garrison comes in.

What makes this bad, of course, is that the interim winter period without Garrison is that of peak demand.



The huge effort is begun to harness and make navigable the International Rapids. Here's what the U. S. and Canada have done and have yet to do. It's . . .

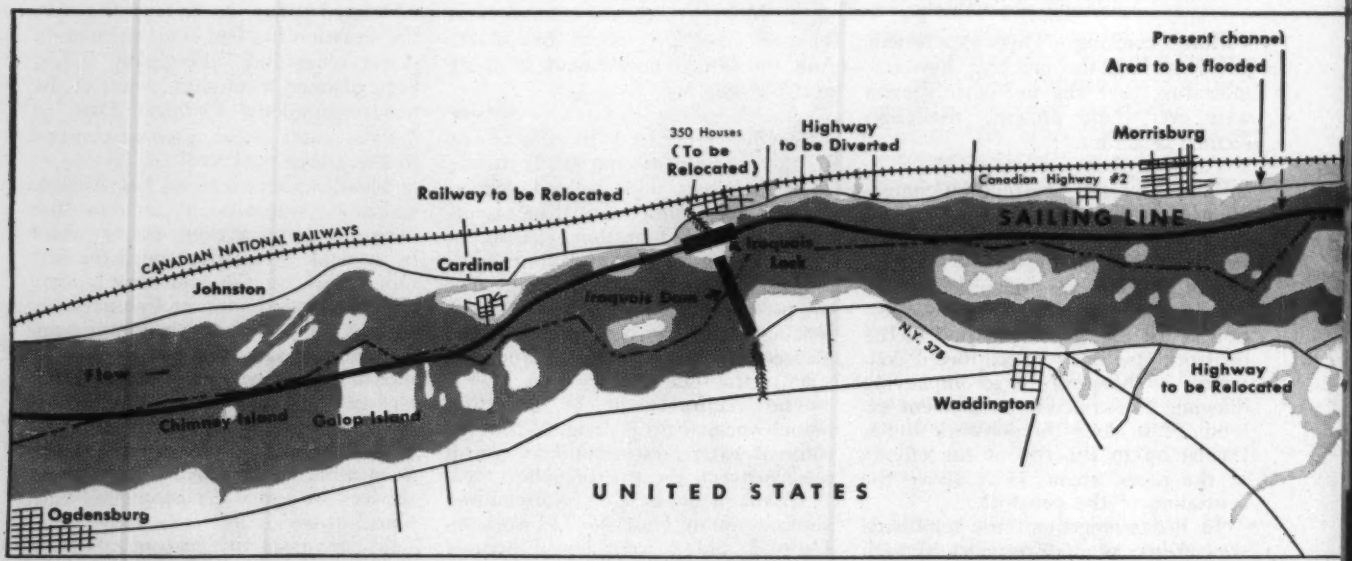
St. Lawrence Construction After One Year

What is unquestionably one of the greatest construction jobs of the century is just past one year old. With its dams, powerhouse, canals, and locks now all under construction, the spectacular St. Lawrence River project —a $660 million power development at the International Rapids and the $100 million St. Lawrence Seaway—has begun to take shape. Emerging from the dream stage with groundbreaking in the summer of 1954, the St. Lawrence project had attained rank as the nation's No. 1 construction job by the summer of 1955.

The first year saw this aged dream come to life as a great earthmoving show on both U. S. and Canadian shores of the St. Lawrence. It saw some spectacular cofferdam construction and diversion of some very fast water. But mostly it saw a great construction force congregating, organizing and fitting out for the even more intense years of construction ahead in the race to have turbines turning in late 1958 and locks opened to traffic in 1958.

With but one year in back of them, the engineers and construction men concentrated on both banks of the St. Lawrence have a difficult fight ahead. It has been a year of amazingly rapid progress, but mostly a year of familiarization.

• **The problems**—The project and its problems have begun to shape up. Engineers and constructors of the vast complex, which for present convenience we will lump together as a single project, can see clearly now the two major physical foes to be vanquished. These are, in general terms, the water and the earth. More exactly, the



From Ogdensburg to Cornwall and from dambuilding to housemoving, it's already a vast complex . . .

water is the 242,000-cfs average flow of the St. Lawrence to be diverted back and forth in one of its fastest moving stretches; and the earth is the very heavy glacial till of the area, and in spots its pockets of marine clay, both of which have been an earth-moving headache.

Separating the over-all construction effort into the many individual projects actually split among four major agencies of two countries and divided further to include the interests of consultants, contractors, sub-contractors, railroads, highway departments and innumerable private parties—considering all this as the interrelated assortment of separate projects it actually is—the biggest problem of all on the St. Lawrence is, in a word, coordination.

Four concrete dams, two separate canals, miles of dikes and channel rectification—all these are to be worked on virtually at once within an island-strewn stretch of the river without once appreciably affecting 14-ft navigation depth in the existing Canadian-shore canal.

Manipulation of the river will require exact coordination. Juggling of construction schedules, too, will demand very close coordination, as will delivery of materials, control of labor, and handling of equipment. Seldom before has there been a project of this scale attempted within such confines of time and space.

• **The project**—In the public mind, this is the long-awaited "St. Lawrence Seaway" under construction between New York State and the Province of Ontario. And actually, it may well be that total economic importance of the deep-draft navigation project will far outweigh in the long-run importance of the 2,500,000 hp to be developed.

In spite of this, it is the power development that makes it all possible; river traffic will lock through pools made from rapids courtesy of power consumers both sides of the border. Especially, it was the urgent need for this power on Ontario Hydro's side of the stream that finally pushed the whole power and navigation project off the drawing boards.

Because the power facilities had to come first, and because they are so much the larger part of total construction involved, consider the power project first:

I. Power Development

The power project owner on the U.S. side is the Power Authority of the State of New York (PASNY). In Canada it is the Hydro-Electric Power Commission of Ontario (HEPCO). PASNY never built a power plant before. For design and supervision of construction it hired as consultant, Uhl, Hall & Rich (partnership born of Chas. T. Main, Inc., of Boston, to satisfy New York law against engineering corporations). Ontario Hydro—experienced at both design and construction of hydro power and owner of 67 hydro plants, 15 of which it built since World War II—is running its own job with mostly Canadian contractors (one U.S. subsidiary firm) on the work.

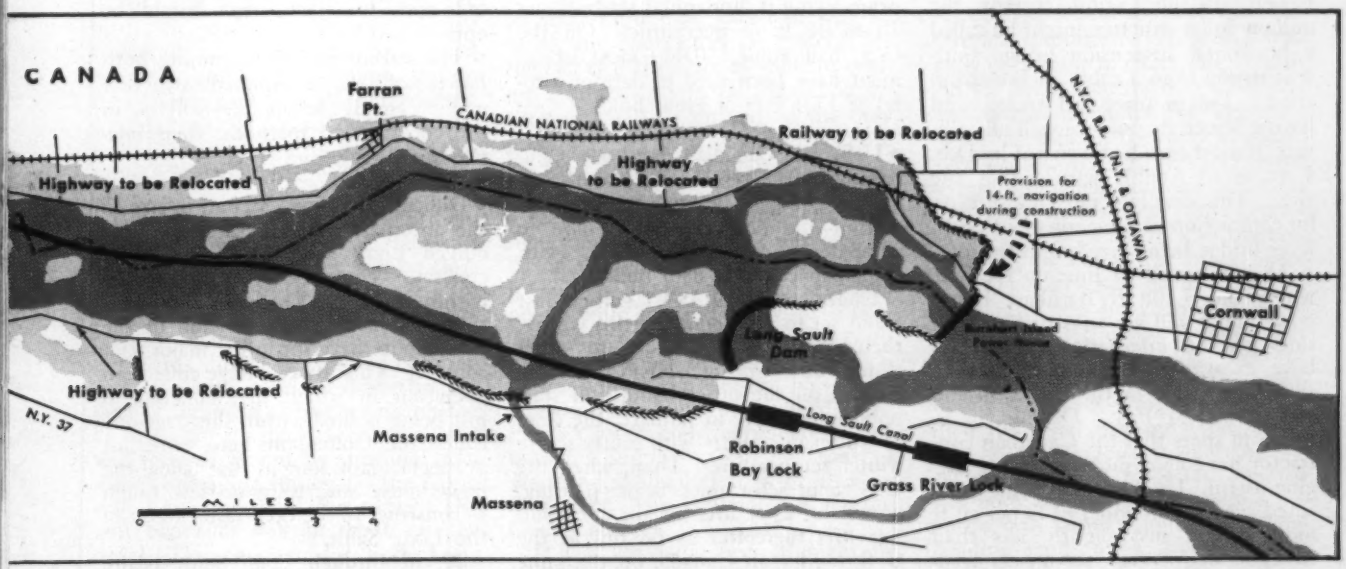
Major contractors working for both power agencies are listed in the accompanying box.

HEPCO work includes 34 miles of highway relocation; 40 miles of railway relocation; moving of 6,500 people; channel improvements; construction of 21,000 ft of earth dike; and construction of the half of Barnhart Island powerhouse north of the international boundary.

PASNY, meanwhile, has as the major elements of its work the U.S. half of Barnhart Island dam and powerhouse; a permanent cantilever truss bridge 1,100 ft long for rail and highway traffic to Barnhart Island; Long Sault Dam, gated spillway for the power pool; Iroquois Dam, to replace a natural rock weir for control of flow from Lake Ontario into the power pool; Massena Intake, a sizeable concrete dam with four gates to control future flow into Massena, N. Y., for water supply; plus dike construction, dredging and considerably less relocation work than is required on the Ontario side.

PASNY and HEPCO have let construction of their halves of the powerhouse to joint ventures of respectively U.S. and Canadian firms. Both agencies felt so strongly about getting the best contractors and prices on this work that, after competitive bids were in, they negotiated final contract prices with other than the low bidder (a method criticized editorially in ENR, July 7, p. 96).

Questionable as the contracting method was, there can be no questioning that constructors at work on both sides of the line are top-notch. In fact, practically everywhere in this area of intense construction activity, one gets the definite impression that the first team is at work. This is the project a good many top-flight contractors, engineers and construction men have been waiting for. It has drawn them



of tightly coordinated construction. And the peak has not yet been reached.

like a magnet from across the country, indeed from around the world.

• **Difficult cofferdam**—First steps in the powerhouse construction were the upstream and downstream cofferdam, both put in under contract by Ontario Hydro. Upstream it was an end-dump rock dam with impervious material placed downstream that cut off flow of the river's lesser channel north of Barnhart Island.

The downstream cofferdam was hardly so routine. Its 60 big sheetpile cells make a most unusually long cofferdam, placed under extremely difficult weather conditions last winter. But more troublesome than the weather were those physical features of the whole job—the dense, boulder-strewn glacial till and the fast, deep water. Mannix-Raymond faced an heroic task in driving the cells—with the awesome thought in the background of pulling all that battered steel when the job is complete.

With both cofferdams placed, the two-mile stretch of river channel between them was pumped out, 650 million gallons from June 15 to June 23. And excavation began immediately on both sides of the border.

Cover and above photo courtesy Bethlehem Steel Co.

LONG COFFERDAM, from Cornwall Canal in Ontario to south channel of the St. Lawrence in the U. S., encloses international Barnhart Island powerhouse construction.

• **Bridge and tunnel access**—For access from the Ontario side, two corrugated-steel-pipe tunnels had been cut and covered beneath the Cornwall canal during its winter shut-down. These tunnels, one for trucks, the other for pedestrians and a materials belt-conveyor, were described in an earlier issue (July 7, p 42). And from the U. S. shore to Barnhart Island a temporary floating bridge of two 250-ft through-truss steel spans was hauled into line on carfloat pontoons. Built against the shore, then swung upstream by winch power into the 15-mph current, the million-dollar structure might be called a horizontal suspension bridge since it is strung from a cable anchored upstream. Put in place last spring, and having served its purpose well all summer, it must now be taken out by Dec. 1 to avoid trouble with ice in the river. This deadline puts pressure on for completion of the permanent cantilever bridge being erected upstream.

At work since last June on the hole where the 3,200 ft Barnhart Island powerhouse will go, constructors both sides of the international boundary have excavation well along. It is a shovel operation in the heavy till and clay down to rock. Digging is so tough in spots that the Canadian contractor has found shooting before digging useful. The heavy till being excavated averages around 140 lb per cu ft loose weight—just slightly less than concrete density—and compacts readily under less than the specified passes of pneumatic roller where it has been placed as the impermeable section of dikes.

• **Major grouting operation**—Drilling and grouting have for some weeks been a prime concern in and around the vast powerhouse excavation. Both consolidation and curtain grouting are involved. The rock across the dewatered river bed at the powerhouse site is generally sound dolomitic limestone laying in horizontal strata under 30 to 90 ft of overburden. On the U. S. half alone, 50,000 sacks of cement have been used to date in a total of 17,000 ft of grout holes.

• **U. S. vs. Canadian methods**—Concreting on the 165-ft high powerhouse dam is going to be an interesting operation—the best chance to date to compare and contrast U. S. with Canadian concrete dam building.

Contractors for PASNY will get just about set to pour concrete this winter, then turn their attentoin to other things until spring. HEPCO's contractor, on the other hand, will start pouring concrete in January, the dead of winter in country with pretty severe winter temperatures. Then, when the U. S. contractor does begin pouring, it will be 2½-ft lifts off the rock and 5-ft lifts thereafter as far out as the U. S. border; in Canada, on the same structure, concrete will be pouring into lifts of varying heights—up to 25 ft.

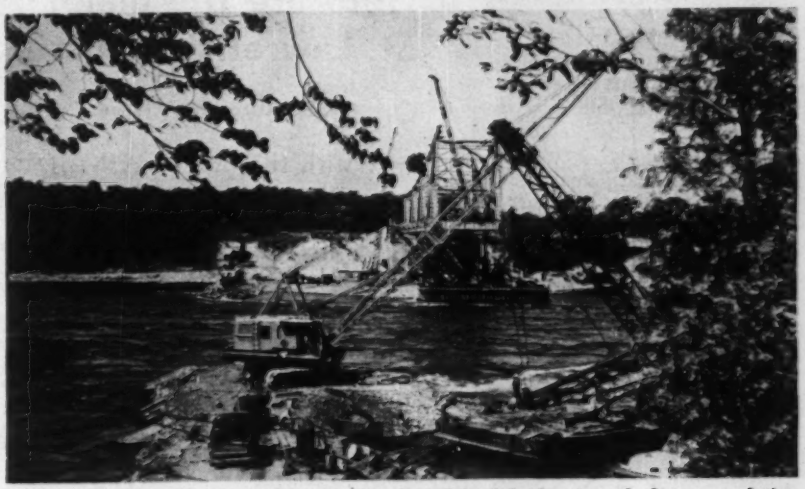
Of course, both halves of this power dam will meet specifications; neither half will be unsound. It will not be possible to look at the finished structure and conclude that U. S. or Canadian concrete is better or worse for the differing methods of placing. Concrete experts may examine the material as it is poured and conclude one product looks better than the other, but even this comparison could be opinionated.

The real comparison—assuming both halves of the completed structure will be equally acceptable—will be in the construction methods, their relative speed, ease and costs.

• **Difficult diversion**—Second in size to the international powerhouse is the curved Long Sault Dam, a 1790-ft concrete control structure totally within the U. S. The same joint venturers as on PASNY's portion of the powerhouse have this other major dam contract. This is a two-stage cofferdam operation in which first concrete is just being poured within the stage-one cofferdam. Cofferdams here, while not as spectacularly long as that below the powerhouse site, were no less tough to construct in the even faster water of the Long Sault.

A cut through Long Sault Island and the upstream cofferdam divert the

St. Lawrence constructors have two physical foes:



FAST WATER, shown here as Barnhart Island bridge is rushed to completion, downstream from the Long Sault dam site.

HEAVY SOIL, which has already proved too much for the contractor who started this earthmoving operation for Robinson Bay Lock.

river's south channel around this work now. When the southern 13 of Long Sault Dam's 30 spillway sections have been poured up to sufficient height, the present cofferdam will come out and new cofferdam will go in; the present river diversion cut will be closed and another longer cut, diagonally through Long Sault Island, will put the entire St. Lawrence flow into the south channel and through the finished half of this dam.

This diversion, when it happens, will be one of the more spectacular accomplishments of the whole job. The whole mammoth juggling act on the 242,000-cfs flow must be accomplished without disturbance to the 14-ft level of navigation in Cornwall Canal. Scheduled time for the big diversion: next Fall.

Iroquois Dam, 25 miles upstream from Long Sault, is for control at the head of the power pool. Though it will span the international border it is being handled totally by PASNY. It will be a 1,910-ft sluiceway structure, intended to create no more than a 4-ft head in the river. Starting out from the U. S. shore, the contractor has his first-stage excavation behind an earth and rock dike, with intentions of using a dumped fill cofferdam all the way across this relatively shallow reach of smooth, but fast-moving water. At its Canadian end, Iroquois Dam will join into the wall of a navigation lock, excavation for which is now well under way. (This is a St. Lawrence Seaway Authority of Canada project and an element of the seaway.)

Massena Intake, fourth and last major river control structure is the power project, is a relatively small (692 ft long), yet considerable gravity concrete dam. Now barely started across the upstream end of Massena Power Canal, it will incorporate four gated openings and a large pump station for a permanent potable water intake for Massena. The canal will be abandoned for power purposes when this project is completed.

• **Concrete will fly**—Altogether then, counting both halves of Barnhart Island powerhouse, there will be close to 3,000,000 cu yd of concrete to place in four major structures. By late next spring, five major concrete batching plants should be spewing out concrete at a great rate. An interesting aspect of the plant being set up on the U. S. end of the powerhouse is that it will receive cement by pipeline from a ship unloading station on the Cornwall Canal north of the river; a slip and two silos will be built on the canal. The concrete for both Long Sault Barnhart Island dams will have natural cement as well as portland in its mix. Otherwise, concrete will be usual, and contractors are grateful for the fact that there are no difficult cooling requirements in the specs. Aggregate piles will be sprayed, as the only precaution to keep concrete below a 72-deg maximum at pouring.

• **Flexible aggregate plant**—The only significant item of work completed so far on the whole St. Lawrence project is the big, 700-ton per hour aggregate plant, built for and ready to supply the contractors of PASNY. This plant will produce all the aggregate U. S. power project constructors will need. A prime contract was signed with PASNY for its construction and operation—for supplying 950,000 tons of sand and 2,500,000 tons of rock in four sizes. The contractor is Tecon-Grafe-Callahan.

It had originally been thought by PASNY that once the constructors had been assigned, they might take over portions of its contract with the aggregate producer. It was found legally impossible to effect this without PASNY losing control over who gets what when demands for aggregate reach their peak in the months ahead.

All contractors with PASNY must by terms of their contract get their sand and stone from this central source. It will go by truck to Iroquois Dam, but by rail to the other major sites. The aggregate plant contractor is not restricted from using some of his capacity at times to supply other than PASNY constructors. Fact is, he'd like very much to take the forthcoming Corps of Engineers business when Robinson Bay and Grass River locks are put under construction.

The aggregate plant is situated on a body of dolamitic limestone (requiring only minor amounts of natural blending sand) on a short rail spur from the New York Central track 12 miles southwest of Massena.

II. Navigation Development

The St. Lawrence Seaway, as long envisioned, is an Atlantic-to-Great Lakes waterway. There is much more involved in it than the navigation work now being constructed in the International Rapids section. But these latter works—the canals and locks to by-pass the power dams—are a critical portion of the whole. They were a long time in getting started; now that the power project has made them possible, little time is being lost.

On the U. S. side, the Army's Corps of Engineers is construction agent for the owner, the St. Lawrence Seaway Development Corp. The Buffalo District of the Corps is handling design, letting of contracts and supervision of construction on 10-mile long Sault Canal with its Robinson Bay and Grass River locks, as well as some channelization upstream. (See right for major contracts.)

• **Giant dragline**—At the far upstream end of this navigation project, a cross-island channel is being cut by "The Gentleman," 650-ton dragline from the Kentucky coal fields. At $1.4 million for 3,900,000 cu yd, the Badgett Mine Stripping Corp. bid less than half of the government's estimate and has its big 14-yd excavator at work on Long Sault Island. Some 65% of the work here involves double casting, as "The Gentleman's" 85-boom tosses 600 cu yd an hour in its steady digging operation.

Where the upstream end of the 10-mile canal leaves the river and goes cross-country, the contracting combine with 12,500,000 cu yd to dig has a dragline operation well started.

The real trouble spots on the canal are its two locks. The lower, Grass River Lock, is potentially the worst headache on the canal. Shifted 498 ft in planning, to avoid a dangerous fault line, this lock has been moved into a spot underlain with the troublesome marine clay. The only good description of this clay is that it looks and digs like blue cream cheese.

To get down through this material 80 ft to rock for the downstream end of Grass River Lock, it has been necessary to excavate the hole at a slope of 1 on 1¾. A dike had to be thrown up around the excavation and 19 deep well pumps each have had to pump 100 gpm of water.

• **Digging in marine clay**—The contractor, valiantly and successfully excavating this goo, is hoping winter and frost will help him some by stiffening up the clay. His rear-dump trucks slip and sink in this miserable material, and at the spoil area where

Here are the major St. Lawrence Construction contracts:

On the power project . . .

. . . with the Power Authority of the State of New York

(Consultant Uhl, Hall, & Rich supervising construction)

	Contractor	Amount
Stage 1 cofferdams, Long Sault Dam	Dravo Corp.	$1,913,250
Substructures, temporary & permanent Barnhart Is. Bridge	A. S. Wikstrom, Inc.	2,149,614
*Superstructure, temporary floating bridge	Walsh Constr. Co.	985,000
*Superstructure, permanent Barnhart Is. Bridge	Mt. Vernon Bridge	3,176,577
Long Sault Dam	Joint venturers: Walsh, Perini, Morrison-Knudsen, Peter Kiewit, Utah (Walsh Construction Co. the sponsor)	25,780,911
Barnhart Island Power Plant *	Joint venturers: Perini, Walsh, Morrison-Knudsen, Peter Kiewit, Utah (B. Perini & Sons Inc. the sponsor)	35,861,955
Iroquois Dam	Joint venturers: Kiewit, Arthur A. Johnson, Al Johnson (Peter Kiewit Sons' Co. the sponsor)	13,836,018
Massena Intake	Joint venturers: Morrison-Knudsen, Perini, Walsh, Utah (M-K the sponsor)	7,780,157
Channel improvements at Galop Is.	Morrison-Knudsen	5,900,442
Channel improvements at Chimney Is.	Great Lakes Dredge and Dock Co.	3,490,039
Access RR and highway	Wm. A. Smith.	922,368
*Grass River Bridge	D. W. Winkleman Co.	1,120,218

* Consultant Praeger-Kavanaugh as contracting officer's representative.

. . . with the Hydro-Electric Power Commission of Ontario

Cofferdams & dewatering of powerhouse area	Mannix-Raymond	2,411,080
Barnhart Island Power Plant	Joint venturers called Iroquois Constructors: Foundation Co. of Canada, Angus Robertson, Pentagon, Rasner-Armstrong, Canadian Comstock	21,940,253
16,732 ft of dike	Atlas Construction Co.	3,300,000
Channel improvement at Galop Is.	C. A. Pitts Gen. Cont.	11,700,420
Channel improvement at Chimney Is.	Canadian Dredge & Dock	4,374,020
13-mile RR relocation	Sir Robert McAlpin & Son	3,100,000
Transformer Bldg., 1st stage	HEPCO'S own forces	3,960,000

On the Seaway project (International Rapids Section) . . .

. . . with the St. Lawrence Seaway Corporation

(U. S. Corps of Engineers as owner's agent)

Long Sault Canal, mainland section	Peter Kiewit Sons' Co. and Morrison-Knudsen Co.	6,452,540
Canal excavation, west section	Badgett Mine Stripping Co.	1,372,800
Excavation, Grass River Lick	Dutcher Construction Corp.	2,197,843
*Excavation, Robinson Bay Lock	Jack & Jim Master, Inc.	990,900
*Defaulted contract now being completed by The Tecon Corp.; total cost to be		1,063,095

. . . with Canada's St. Lawrence Seaway Authority

Canal & lock at Iroquois, Ont.	Pentagon Constructors and Iroquois Constr.	6,470,000

Omaha Uses Steel Pipe in Expansion Program

Now nearing completion is a three-year, $12 million water plant improvement and expansion program of Omaha's municipally owned Metropolitan Utilities District. Its immediate objective is to boost the output capacity of the Florence Water Works (the pumping station which supplies all water for the city) to 120 million gallons per day and to expand distribution and storage systems accordingly.

Vital to the program was the installation of approximately 7500 ft of 48 in. x ⅜ in. and 2500 ft of 36 in. x ⅜ in. steel trunk mains, coated with coal-tar enamel and wrapped with asbestos felt, supplied by Bethlehem.

Bethlehem Tar-Enameled Steel Pipe offers many advantages for water and sewage lines. Its superior strength, its ability to withstand high pressures from within as well as impact from without, its leakproof joints and its corrosion-resisting tar-enamel lining and coating, assure you of a quality of service unequalled by any other material. Available in economically installed 40-ft lengths, Bethlehem Steel Pipe comes in a complete range of diameters from 18 in. ID to the largest permitted by common carriers.

For further information about Bethlehem Steel Pipe, we suggest you contact the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

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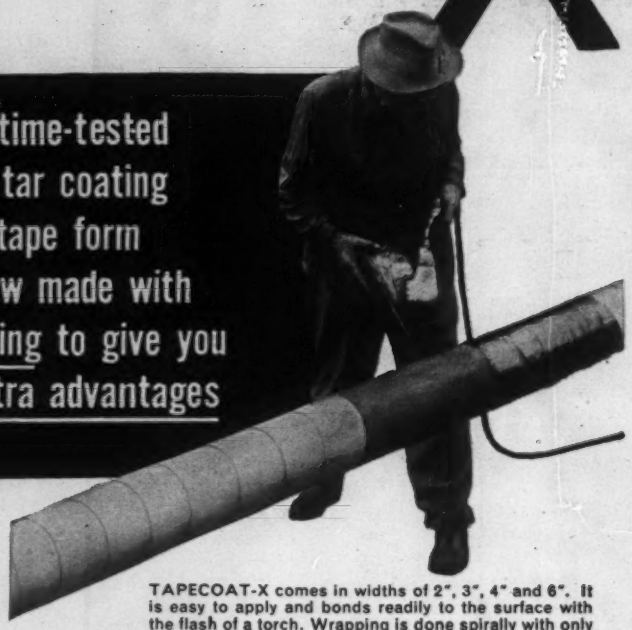
Specify...

®TAPECOAT-X

The time-tested coal tar coating in tape form ... now made with Xtra coating to give you these Xtra advantages



TAPECOAT-X comes in widths of 2", 3", 4" and 6". It is easy to apply and bonds readily to the surface with the flash of a torch. Wrapping is done spirally with only ½" overlap.

XTRA COAL TAR! Provides additional thickness of the same high quality coal tar that has distinguished TAPECOAT since 1941.

XTRA COVERAGE! Added coal tar thickness permits single wrap for same effective protection as present double-wrap method.

XTRA SAVINGS IN TIME AND LABOR! Faster application means lower labor cost.

XTRA SAVINGS IN MATERIAL! Single-wrapping with TAPECOAT-X requires less material, lowers cost.

XTRA CONVENIENCE! New type, self-disposing liner facilitates unrolling, speeds application, never gets in your way.

XTRA ECONOMY! TAPECOAT-X goes farther, gives you more value for your protection dollar.

Write today for the complete facts on this timely development for protecting pipe, pipe joints, mechanical couplings, tanks and other steel surfaces vulnerable to corrosion, above and below ground.

The **TAPECOAT** Company

ORIGINATORS OF COAL TAR COATING IN TAPE FORM

1551 Lyons St., Evanston, Illinois

he dumps it, special extensions on his stacking dozers are intended to keep them free from the clay they must move. Hauling units with positive unloading devices are the surest bet that the clay, once loaded, will be unloaded at the spoil area. Another success has been the trick of piping exhaust through wagon bodies to heat them and keep the clay from sticking.

Dutcher Construction Corp., of Queenstown, Md., is over half through with this rough excavation and in fair shape to meet a February completion date. Success will depend on using every trick in the book for moving sticky material over slick and rubbery haul roads.

For Robinson Bay Lock upstream evacation must go 120 ft to rock, totally in glacial till. The original contractor here bid $990,900 on 2,604,000 cu yd and wishes he had bid more. He attempted the excavation as a scraper job (it might better haye been shovels) and the heavy boulder-strewn glacial till took its toll. This contract was half done when the contractor defaulted. It will be completed under a new contract as reported in ENR Oct. 13, p. 23.

These then are the major portions of work under way on the navigation project within the U. S. Bids will soon be asked on construction of the locks themselves. The whole project will be pushed to completion over the next two construction seasons, so that limited (14-ft) navigation will be possible in July, 1958 when the Cornwall Canal must be taken out of use.

Last major element of construction in the area is the lock on the Canadian side at Iroquois, well under construction by Canada's St. Lawrence Seaway Authority.

All told, it is a whale of a lot of construction going on in this Cornwall-Massena-Iroquois stretch of the great St. Lawrence River. There were about 4,000 on the work during the summer; there may be 7,000 next year.

Here are but some of the people who are responsible there in the field.

For PASNY, William H. Latham is resident engineer.

For the consultants, Uhl, Hall & Rich, F. D. Matejka is in charge of a field and field-office force of 210. His number two is E. L. Armstrong.

For Ontario Hydro, Gordon Mitchell is projcet director and William M. Hogg is field project engineer.

For the Corps of Engineers, T. F. Airis is area engineer, working under the Buffalo District Engineer, Col. Loren W. Olmstead. His project engineers are Wayne Wolfe and John Hayes.

Transite Sewer Pipe provides these 4 basic economies

The engineer, the contractor and the taxpayer —all benefit when Transite® Pipe is used for sewer lines. Costs are cut in many ways—among them the four basic Sewer Pipe economies . . . in system design . . . in installation . . . in operation . . . in maintenance. If you make a quick run-through of the following condensed check list, chances are you will find savings which apply directly to your sewer system problems.

1. System Design

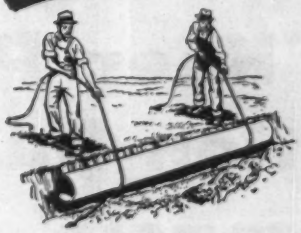
- Use of smaller diameter pipe
- Installation at flatter slopes

(Typical Economies)

- Installation in shallower trenches
- Savings in amount of material excavated
- Smaller earth loads
- Elimination of cradling
- Location of treatment plant at higher level
- Elimination of pumping

Users have found—With its high flow capacity (flow coefficient n= 0.010 derived from the Manning formula) and with its maintained strength, Transite Sewer Pipe contributes to typical system design economies.

2. Installation



(Typical Economies)

- Fewer joints
- Easier handling
- Smaller crews
- Speedier assembly
- Assurance that joints pass severe infiltration tests

Users have found—With its longer lengths, light weight, ease of assembly and tight, quickly made joints, Transite Sewer Pipe contributes to typical installation economies.

3. Operation

(Typical Economies)

- Infiltration treatment cost drastically reduced
- Only normal sewage treated

Users have found—With its tight joints connected by Johns-Manville's Ring-Tite® Coupling, Transite Sewer Pipe contributes to typical operation economies.

4. Maintenance

(Typical Economies)

- Tree roots kept out—minimizes cleaning
- Sewers kept smooth and intact—pipe stays strong, joints stay resilient
- Need for frequent inspections reduced

Users have found—With its maintained strength and with its tight joints, Transite Sewer Pipe contributes to typical maintenance economies year after year.

For further information and your copy of TR-94A, helpful, widely used Sewer Design Flow Chart based on the Manning Formula, write Johns-Manville, Box 60, New York 16, New York

Johns-Manville TRANSITE SEWER PIPE

the asbestos-cement sewer pipe with the tight joints

ALLIS-CHALMERS Helps Milwaukee

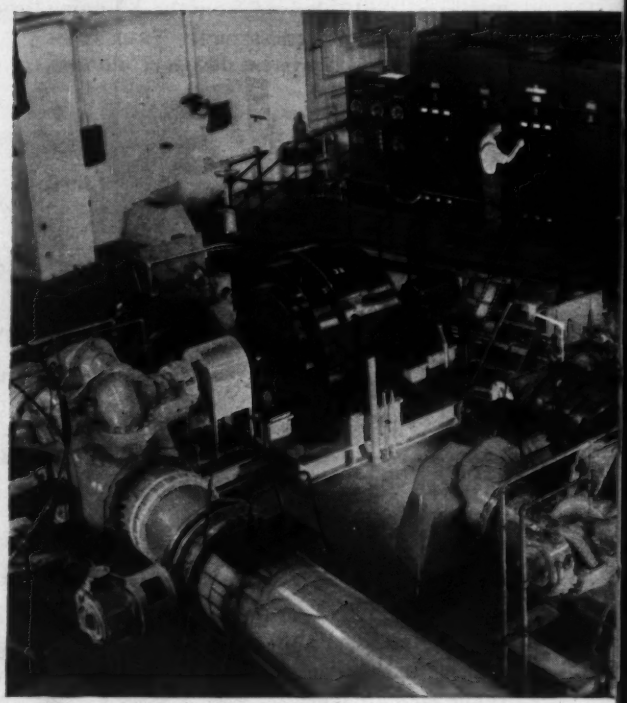
To Keep Pace With Population-Business Growth of Wisconsin's Largest City

IN HUSTLING, BUSTLING MILWAUKEE, water is used at the rate of 175 gallons per day per person. Within the 100-sq-mile metropolitan area of Milwaukee, there are nearly a million people . . . and 2000 thriving manufacturing firms, including world leaders in the production of heavy industrial machinery, beer, motorcycles, tractors, diesel and gasoline engines . . . all using water in increasing amounts.

Milwaukee's water is obtained from Lake Michigan — through an intake over a mile out and 67 feet deep. Consumption climbed from 22 billion gallons in 1924 to 48 billion in 1954. A record month's high — 6¼ billion gallons — was pumped in August 1955.

Allis-Chalmers equipment now operating in Milwaukee's water system includes large vertical pumping engines — dating back as far as 1890 — at the North Point station, and steam and motor-driven units, electrical equipment and valves at the Riverside station, filtration plant and booster stations. In 1955, as part of a continuing modernization and expansion program, two A-C 30-mgd, motor-driven pumps, with controls, substation and butterfly valves, were put into service at the Riverside station.

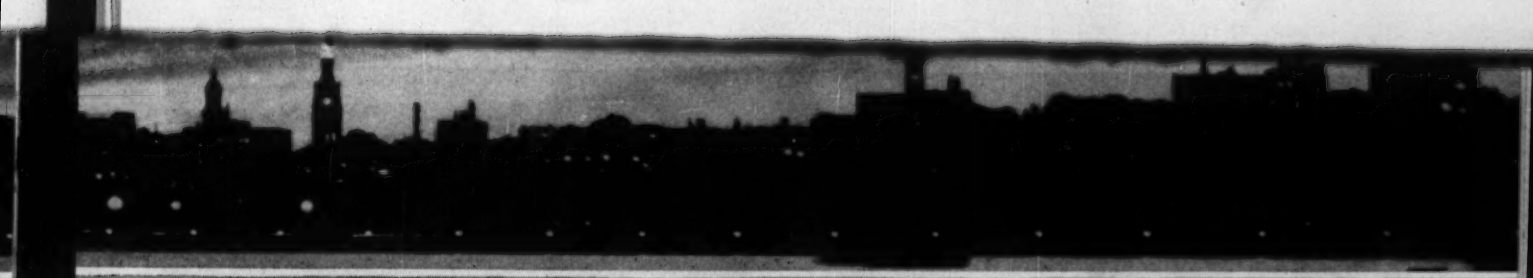
When YOUR CITY plans expansion or modernization, do as other progressive communities are doing — call the nearest A-C office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. A-4856



Builders of World's Widest Range of Public Works Equipment

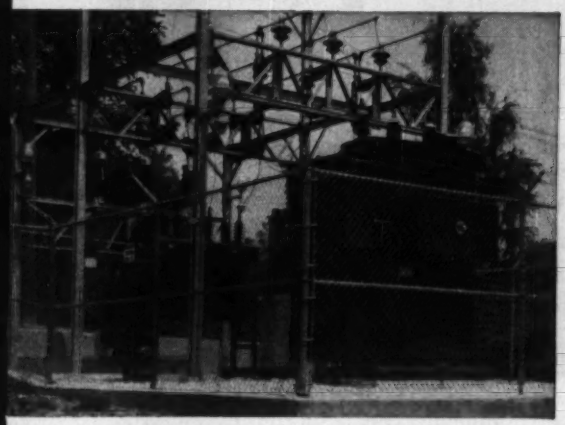
Pumps; motors, *Texrope* drives, control; switchgear, substations, transformers; butterfly valves; steam turbine-generator units, condensers, hydraulic turbines and generators, engine-generator units; blowers, compressors, vacuum pumps; dryers, screens, mills, sifters; tractors, graders, scrapers, motor wagons, power units.

ALLIS-

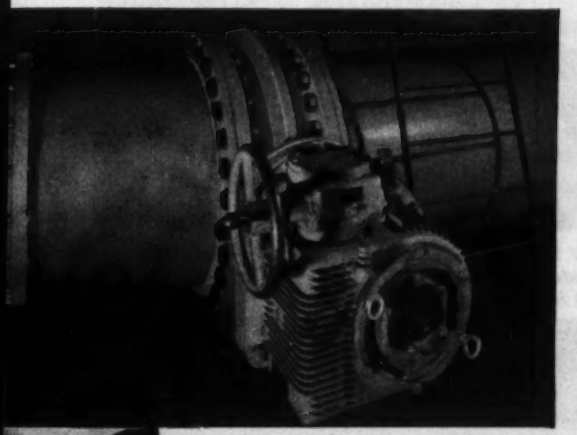


Modernize and Expand Water Works

Milwaukee Journal Photo



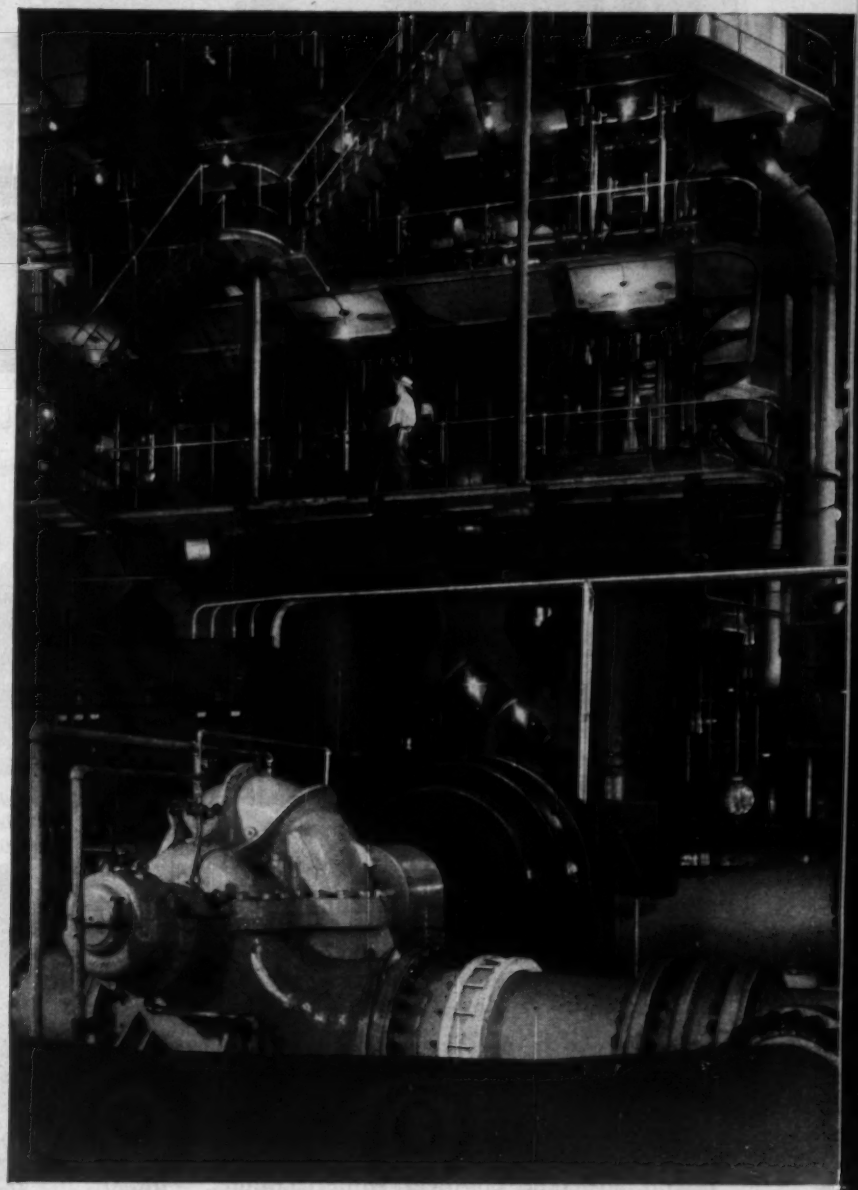
Allis-Chalmers outdoor substation protects and controls the electrical power supply for Milwaukee's Riverside pumping station.



Close-up showing one of several of the latest Allis-Chalmers butterfly valves installed at the Riverside station. A-C builds many designs of valves, including units conforming to American Water Works Standards.

Two new Allis-Chalmers 30-mgd pumps and their 2000-hp synchronous motors and controls were fitted into space formerly occupied by one 30-year-old, 15-mgd vertical pumping engine.

Texrope is an Allis-Chalmers trademark.



View of Riverside station installation dramatizes progress in pump design in the past 30 years. Towering pumping engine in background was record setter in 1924 and is still going strong. But at best it pumps only two-thirds of the water handled by compact new A-C pump in foreground.

CHALMERS

A-C ALLIS-CHALMERS

butterfly valves; steam turbine-generator units, condensers, hydraulic turbines and generators, engine-generator units; blowers, compressors, vacuum pumps; dryers, screens, mills, sifters; tractors, graders, scrapers, motor wagons, power units.

Erecting half trusses weighing 50 tons with 35-ton derricks.

Welded design is answer to structural dilemma

EFFICIENT use of all welded Vierendeel trusses has solved a difficult framing problem on the new 2 million dollar library in Hartford, Connecticut.

The structure problem is spanning the Park River conduit with maximum utilization of space.

Five all-welded Vierendeel trusses carry the structure over the conduit. 104-foot spans carry the basement on the lower chord and the first floor on the upper chord. Subsequent floors are suspended from the roof structure.

Architects: Schutz & Goodwin, Hartford, Connecticut. Supervising architect for City of Hartford: Daniel Tasillo. Structural Engineer: Robert Loomis, Windsor, Conn. Structural Fabricators: Lehigh Structural Steel Co., Allentown, Pa. General Contractor: Wadhams & May Co., Hartford, Connecticut.

Welded steel framework for Hartford Public Library uses Vierendeel trusses. 192 feet long, 176 feet deep. Designed for 150 psf in storage area, 60 psf in offices.

High speed welding of truss components.

THE LINCOLN ELECTRIC COMPANY

Dept. 2309, Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment

Down the Middle: Bisecting 120-mi-long Long Island, newest of New York State's express routes will provide better access to area's parks, beaches and resorts.

New York Pushes a Thruway to the East

Two major highway bridges—one of which requires a 700,000 cu yd compacted earthfill, and the other a very long continuous girder—are under construction now, as New York City struggles to provide better mobility for its thousands of motor vehicles.

The two structures will become a part of a proposed $200-million express route that will bisect the big city's playground and suburban adjunct of Long Island along its east-west axis for slightly more than 100 miles. Paralleling six existing major east-west routes on the island, the expressway will start at the entrance to the Queens-Midtown Tunnel within New York City's Queens Borough, on the western end of the island, then run eastward to the village of Riverhead—seat of the state's easternmost county of Suffolk.

The first 19 miles of the route—the section within the city limits—is a job of putting together a patchwork of existing and proposed roadways, with all the attendant problems of construction in heavily built up urban areas. An additional 9 miles, from the city line to a point about midway into Nassau County, will involve reconstruction of existing roads, while the remaining 72 miles will be on new right-of-way through the flat farmlands and sandhills of Suffolk County.

The route will have three names: Horace Harding Expressway to the city line; Horace Harding Extension to the Nassau County mid-point; Long Island Thruway for the remaining distance. A total of six public agencies will have some part in supervising construction: The Federal Bureau of Public Roads; the State Department of Public Works; the Triborough Bridge & Tunnel Authority; the Construction Coordinator for the City of New York; the counties of Nassau and Suffolk, and the Long Island State Park Commission. The Triborough authority has supervised construction for the City of New York on the section from the Queens-Midtown Tunnel to Queens Boulevard, and is handling right of way acquisition for the city from Queens Boulevard to the city line.

Providing added access to miles of beaches and resort areas, the expressway system will also eventually tie into a general traffic-easing scheme for the New York metropolitan area, which will cost a total of more than a billion dollars. Two proposed bridges—one across the Narrows and one across the East River at Thoggs' Neck (ENR Jan. 20, p. 28)—and miles of connecting roads are aimed at making it possible to by-pass congested Manhattan Island by providing routes north and south of its 13½ mile length.

• **In the city**—All the work now under way—excepting one small project—is within the city limits, and it consists of connecting pieces of earlier express route projects into a limited-access route that will have a minimum overall right-of-way width of 260 ft, and must cross some of the worst ground, from a construction standpoint, in the city's borders.

Some of this ground is low-lying swampland, filled in years ago with garbage or simply by washings from years of drainage of higher land.

And it is in this area that one of the two biggest pieces of construction is now under way—a bridge and interchange that crosses a five-corner corner connection of major city streets with a multi-level section of Queens Boulevard. A few miles farther to the east is the other big job, a bridge and a relatively huge fill, across an undeveloped swamp that will one day become a city park, and a section of the six-lane Belt Parkway.

Both jobs are under contract to Tully & DiNapoli of New York City.

• **Big bridge**—The Queens Boulevard bridge will carry six lanes of expressway traffic, a 12-ft center mall and two 3-ft sidewalks, on three-span, 480-ft continuous girders.

It will be, in fact, two separate bridges, with an expansion joint running between the two halves for the full length. Each "half" will be supported on five heavy steel girders, each 10 ft deep at the haunches and 6 ft deep at centers, supported on bridge abutments and two sets of 10 brick-faced concrete piers. The piers are elliptical in shape, with dimensions of 10 ft by 5 ft.

Spans from abutments to piers are 120 ft on the south side, 170 ft on the north and the center span is 190 ft from pier to pier. The long center span was necessary because Queens Boulevard—with a depressed center roadway at that point—is itself built on top of a six-track main line of the city's Independent Subway system.

The roadway on the bridge will be an 8-in. slab, with a 4-in. wearing surface.

Because of the extremely heavy traffic moving in almost every compass direction around the bridge site, erection of the steel was a problem both in traffic handling and erection techniques.

The contractor, with the advice of Amman & Whitney, consulting engineers for the section, decided to erect the girders by placing anchor sections first between the abutments and temporary wood bracing, then placing the

COMPLICATED INTERSECTION with Queens Boulevard, called for cantilever construction of continuous girder bridge. Depressed section of Boulevard (upper right), is itself over a six-track subway line.

two center sections as cantilevers over the main roadway. The erection operation was carefully timed for late night and mid-day periods when traffic is normally light.

• **Fill and bridge**—Seven miles further east, there was a different problem.

Here at the site of what the city hopes will one day be Alley Pond Park, the problem of constructing a bridge was comparatively simple—but the approaches for it would entail a fill of more than 700,000 cu yd of compacted material, partly placed in a swamp.

Location of the fill was simple enough. The glacial moraine that is Long Island is one of the finest natural sand-and-gravel deposits in the world, easily handled by scraper or shovel. At the site, the Belt Parkway runs beside a swamp through what constitutes a deep valley on Long Island: The roadway is at elevation 20 over sea level, and within 150 ft to the west, the land rises to an elevation of more than 100 ft.

The scheme was, then, to cut away the steep hill on the west side to conform with the designed grade for the expressway, truck the borrowed material by means of the existing roads a distance of about a half-mile to the east side, and dump it there.

• **Solution for mud**—But it hasn't been as simple as that. Aside from the ever-present problem of operating heavy equipment over city streets in traffic, there was the fact that the park area is a swamp. Alley Pond itself—from which the area takes its name—is simply a wide shallow pool within the swamp, fed by drainage from the surrounding hillside areas.

SLAB FORMING of 480-ft Queens Boulevard crossing followed right behind steel erectors. Projecting rods atop girders are grade "stakes" welded in girder.

Normal groundwater level is about at elevation 14. An answer worked out by Brown & Blauvelt, consultants on this section of the expressway, was based on the necessity of removing all of the muck in the swampy area under the fill to the location of the bridge abutments.

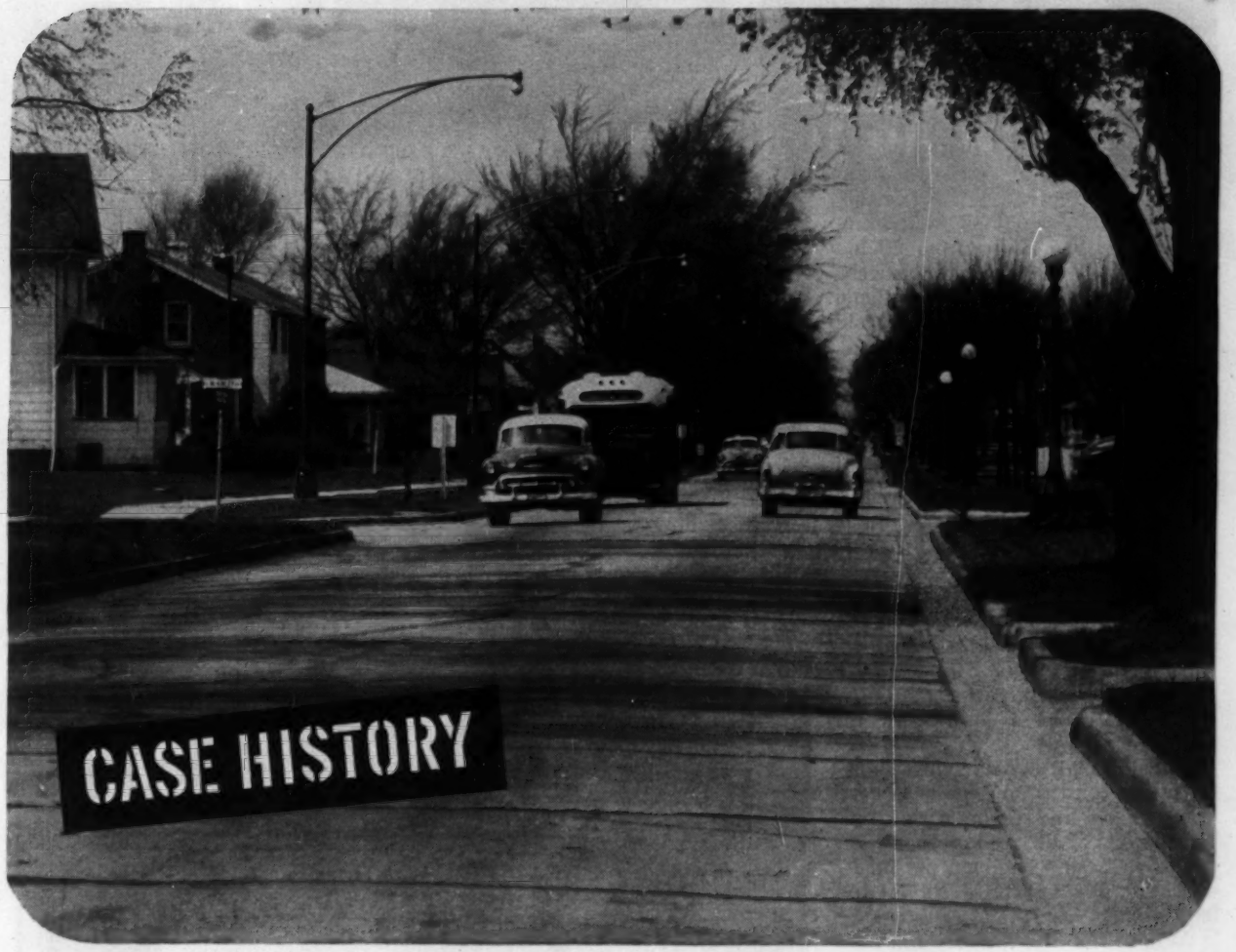
• **Mud wave on purpose**—That answer was the deliberate creation of a mud wave in front of the landfill—a wave could be removed easily by draglines as the fill proceeded.

To produce this mud wave, the fill was brought down from the top elevation at the extreme east side of the site in a series of terraces, with a sharp knife-edge on the end going into the swamp—an edge up to 20 ft above normal ground elevation and more than 150 ft wide. (The terracing was necessary in order to permit operation of trucks in the area, rather than for any construction need.)

As each load was deposited, it was spread immediately by bulldozer, and each 8-in. lift immediately compacted (up to 90% compaction has been achieved) by wobble-wheel rollers. Sheepsfoot rollers were ruled out since they tended to churn up the coarse sand and gravel of the fill with little compactive effect.

Draglines at the foot of the fill will remove a total of more than 50,000 cu yd of muck by the time the filling operation is completed. Useless as fill because of the large content of decayed vegetable matter, the muck is being cast by the draglines into areas that will be within the space between the completed fill and necessary service roads—where it need bear no weight except that of shrubbery.

The bridge itself will be 242 ft long between abutments, carried as four simple steel spans between the abutments and three piers—one of which will be set in the median strip of the existing Belt Parkway. All abutments and piers rest on cast-in-place pile



Property Owners benefit greatly by low-annual-cost service of CONCRETE streets

This is a recent photograph of West Springfield Avenue in Champaign, Ill. The street was paved with concrete in 1922. Now 33 years old, it is a a typical example of the long and economical service rendered by hundreds of miles of concrete streets in all parts of the country.

Today, West Springfield Avenue carries heavy truck, bus and passenger car traffic year in and year out. Like many other veteran streets it is carrying much more and much heavier traffic than could have been foreseen by its designers more than a generation ago.

The cost record of this street exemplifies the economy of concrete pavement. When Springfield Avenue was paved the average lot owner's assessment was $512, including interest. To date the annual cost has been less than $16 per lot. By the time the pavement has served out its life the annual cost will be even lower.

Concrete's ***low-annual-cost*** service is only one reason it is preferred by both public officials and property owners. Concrete streets are also much safer. Their gritty, highly skid-resistant surface grips tires better, permits quicker, safer stops, wet or dry. And concrete's light color, reflecting up to four times more light than dark pavements, not only reduces street lighting costs but also makes residential areas safer for motorists and pedestrians alike. Finally, concrete streets increase property values by "dressing-up" the whole neighborhood with their neat, clean appearance.

For more information about long-lasting, safe, low-annual-cost concrete streets, write for free literature, distributed only in the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION Dept. A11a-17, 33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

bents driven to an average of 60 ft below ground surface to firm bearing.

A complicating factor in the construction is that the area is criss-crossed with utilities, storm drains and other service facilities that must be maintained during construction. These facilities include four water supply mains to a city pumping station in the vicinity, which vary from 20 in. in dia to 48 in.; a number of relatively large concrete culverts (one of them 8 ft by 8 ft in section) to carry off storm drainage, and various storm and sanitary sewer lines.

Tully & DiNapoli's $1.9-million contract at Alley pond includes construction of the fill and the bridge itself. Slattery Contracting Co. holds a $4.4-million contract for paving the fill, bridge, service roads and two local road overpasses, one at either end of the Alley Pond job.

At Queens Boulevard, D. D. Bentley is resident engineer for the consulting engineers, and Fred Karcher job superintendent for the contractor. At Alley Pond, resident engineer is D. A. Ostrower, job super is John C. Moore.

• **Overall look**—Although only a relatively few construction contracts have been let on the section within city limits, costs of the road are now estimated at about $4 million per mile—much of that accounted for by the moving and maintaining utilities.

Within the city, the road will have a right-of-way averaging 260 ft. This will include two 36-ft main roadways separated by a 12-ft center mall, either depressed or carried as an elevated section to bypass local traffic; 32-ft service roads on either side, plus provisions for park areas, local parking and loading zones and the like. Access will be limited.

Rather surprisingly in New York City, this wide right-of-way will cause very little dislocation of local residents and business establishments. For most of the length of the Horace Harding Expressway section, the city already owns a 160-ft right-of-way, and much of the area bordering the route has only lately begun to be developed.

When completed, the whole express route will tie into a number of existing parkways and major traffic routes, and into at least two cross-island routes now under construction: The Meadowbrook Parkway extension, The Oyster Bay-Wantagh expressway, and the final sections of the Northern State Parkway in Suffolk County.

If the Throggs' Neck and Narrows Bridges are built, the whole route—through a network of connections (some of which are also under construction)—will make it possible to go to the north and west from Long Island without crossing Manhattan.

MUD WAVE is formed in swampy bottom of Alley Pond as 'dozer pushed out fill. Wave was formed deliberately as quickest means of moving muck out of path of road.

SHARP EDGED FILL for Alley Pond crossing is brought to edge of muck area, squeezing unsuitable material into place for easy removal by cranes.

Status of Horace Harding, Long Island Expressway

Section	Cost (Land and Construction)	Status	Engineers	Contractors
Tunnel plaza to Brooklyn-Queens Expressway	$51,530,000	Opened to traffic 1940–41		
Bklyn-Queens Expwy to Queens Blvd.	$22,650,000	Opened to traffic (to Maurice Ave.) Construction nearly complete	Andrews, Clark & Buckley	Slattery Contracting Co. (To Maurice Ave.) $3.6 million; Horn Construction Co. $3.9 million
Queens Boulevard to Nassau County Line	$46,250,000	Construction underway	Amman & Whitney (to Parsons Blvd.) Brown & Blauvelt	Tully & DiNapoli (Queens Blvd. Bridge) $2.8 million; Klevens Corp., approx 1 mi from bridge to near Flushing Meadow, $5.1 million; Tully & DiNapoli (Alley Pond Bridge) $1.9 million; Slattery Contracting Co., paving, 2 bridges, $4.4 million, Hendrickson Bros. end of Alley Pond job to county line, $2.8 million
Nassau County Line to Guinea Road, thence to Suffolk County Line	$47,165,000	Preliminary plans approved Railroad underpass completed	Andrews, Clark & Buckley	
Nassau Line to Riverhead	$74,300,000	Alignment and route study 80% complete	Lockwood, Kessler Bartlett	

NOBLE-MOBILE

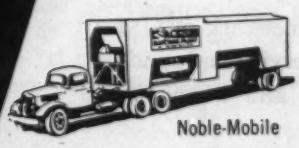
"Batching plant on wheels"

the complete plant that saves erection costs... drive it to the job site and start batching!

Noble-Mobile lets you batch at the job site proper where shorter hauls result in greater capacity. You go quickly into production . . . no footings, crane or electrical wiring required.

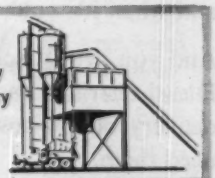
Noble-Mobile utilizes bulk cement. Aggregates charged with scooploader, conveyor or clam-shell. 60 yards per hour or more output to truck mixers. Noble-Mobile drives the highways within legal limits. No special permit required.

NOBLE BATCHING PLANTS


Noble-Mobile

Portable or semi-portable plants

High capacity stationary plants



• *DESIGNERS AND BUILDERS* •

For further details phone, write or wire **NOBLE COMPANY**

1860 7th Street, Oakland 20, California, TEmplebar 2-5785 • 20950 Center Ridge Road, Cleveland 16, Ohio, EDison 1-3426

For faster job-cycles make it 2-Cycle Power

SPECIFY GENERAL MOTORS DIESEL

in all your construction equipment

MODERN 2-cycle design is the main difference between GM Diesels and most other Diesels built today.

Two-cycle design means power on every piston downstroke. This is one of the reasons why a General Motors 2-cycle Diesel accelerates faster, responds to governor controls quicker, takes sudden shock loads in stride.

That means more work per shift from your equipment—means you can handle bigger contracts with fewer units, keep your capital investment down and your profits up.

But you get more than faster work when you *specify* GM Diesel power.

You get engines that are easy to service and maintain, that help you keep parts stocks low because of the high degree of parts interchangeability. You get engines that start at the push of a button with no auxiliary, even in wet weather and when it's cold.

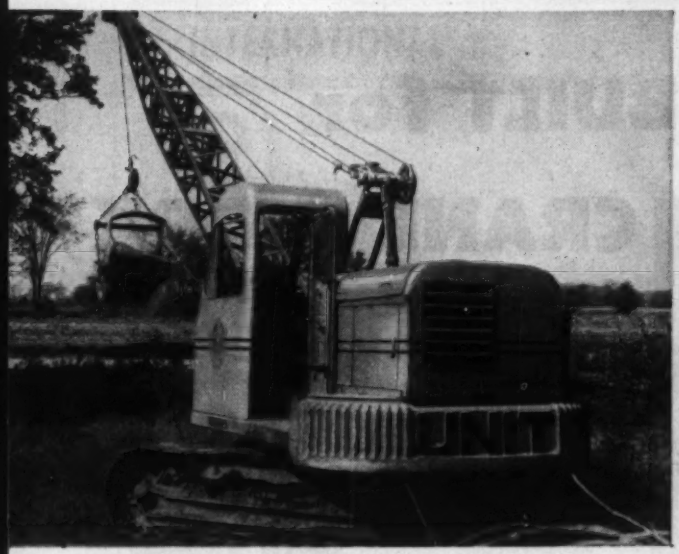
And you get Diesel engines backed by a network of GM Diesel distributors ready to supply fast service and quick delivery of low-cost factory parts where and when you need them.

Today you can specify GM Diesel power in over 750 different models of equipment built by more than 150 manufacturers. Get their names from your local GM Diesel distributor or write direct for the list.

"QUICK SERVICE WHEN I NEED IT"

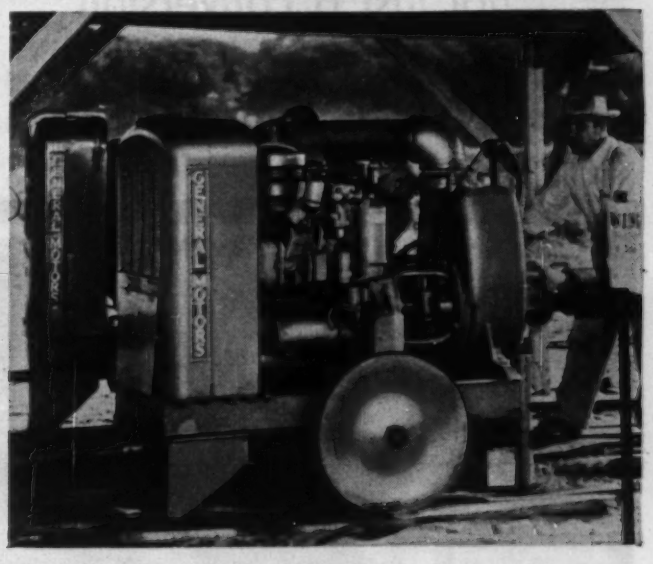
Iowa's Gene McClain Construction Company has GM Diesel power in this Cedarapids asphalt plant and in a shovel. Superintendent Jim Grundy says, "We've standardized on GM Diesel power for this operation because GM Diesels are economical to run. Dealer service is quick and good . . . the company stands behind their product."

GM
GENERAL MOTORS
DIESEL POWER



MOVES 1000 YARDS IN 10 HOURS

And that's big production for a ¾-yard dragline. This GM Diesel-powered Unit has been working for Michigan contractors, Henry Schmid Sons, since 1946. Its General Motors 2-cycle Diesel burns about 12 gallons of 14.9¢ Diesel fuel a day—cost only $100 for repairs in more than 17,000 hours of operation.

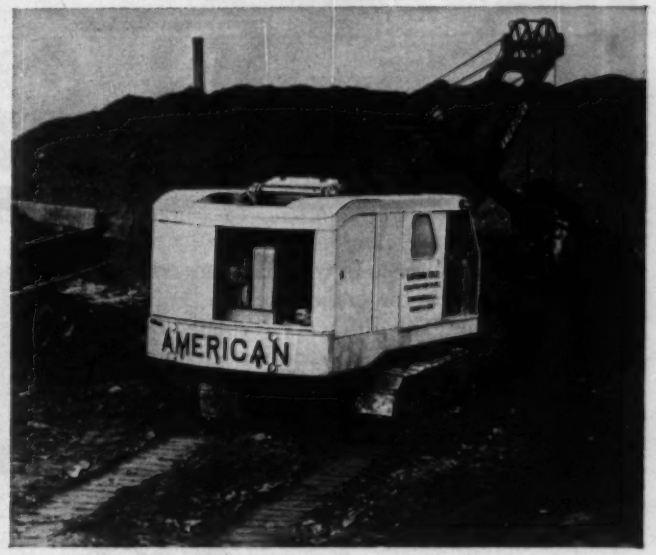


MULTIMILLION-DOLLAR DEPENDABILITY

Faced with wet footings on this multimillion-dollar sewage plant contract, Pittsburgh's Rust Engineering Company put GM Diesel-powered Jaeger dewatering pumps to work. Superintendent P. J. Pedone says, "The GM Diesel engines have proved very satisfactory . . . they're keeping footings dry so we can go ahead with the job."

3 GM UNITS ALMOST DOUBLE OUTPUT

Kansas' Reno Construction Company reports their new Cedarapids portable rock crusher with three new GM Diesels stepped up output from 200 tons per hr. to almost 400 tons. One "6-110" Diesel powers the primary 36" x 45" double impeller impact breaker; a GM Twin "6-71" powers the secondary and a "3-71" powers the conveyors, screen and feeders.



25% MORE WORK FROM GM DIESEL POWER

One of the best known excavating companies in Northern New Jersey and New York State is Raymond L. Cole Construction Co. "Our GM Diesel-powered American shovels do at least 25% more work than other Diesels in the same number of hours. They are more flexible," reports this user of one 1½- and three ¾-yard shovels . . . all GM powered.

DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS • DETROIT 28, MICHIGAN

Single Engines . . . 30 to 300 H.P. • Multiple Units . . . Up to 893 H.P.

... not just a conversion

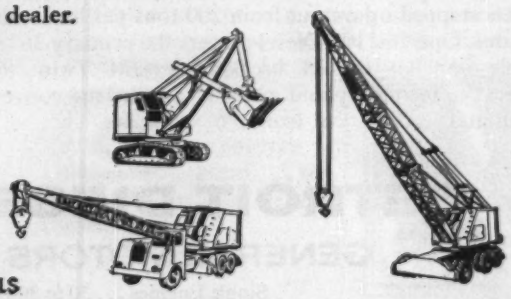
DESIGNED and BUILT for CRANE WORK

... there is a difference

Yes, there is a difference in whether your crane is designed and built for crane work or is just a change in booms. The difference is spelled out in better performance on all crane work from pile driving to steel setting.

The BAY CITY MODEL 450 Erectors Crane, shown here, has a rated capacity of 15 tons . . . will handle up to 75 feet of boom, including jib . . . has an independent worm and worm wheel boom hoist that will raise or lower boom, or boom and load, only under power through separate clutches . . . has a collapsible hi-gantry, floating bridle and pendant cable boom tension system, plus tandem drums with the hoist drum capable of wrapping up to 862 feet of 5/8" cable.

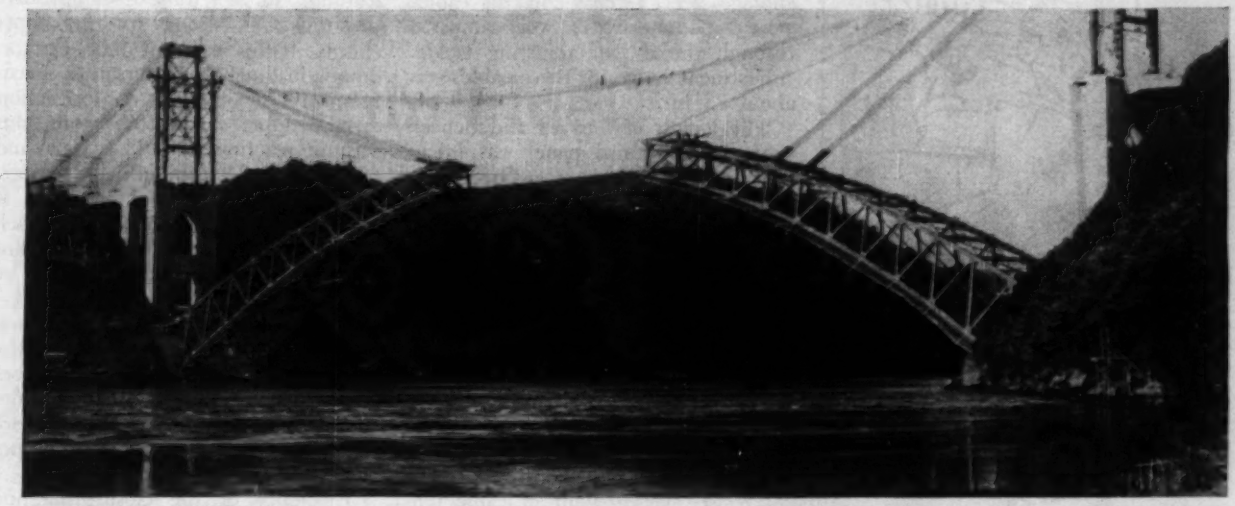
These are but a handful of the bigger values built into the BAY CITY Erectors Crane. Before buying your next crane, it will pay you to look into the time-saving, money-saving possibilities of a BAY CITY. Write for complete information or see our nearest dealer.



BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

BAY CITY 251

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



CANTILEVER ERECTION system uses a cable tieback arrangement with support at 7th and 11th panels on each half of the arch.

Jacks Close Japan's Longest Steel Arch Span

Eight 300-ton capacity hydraulic jacks were used to effect the closing of the Inoura Narrows Bridge—Japan's longest steel arch span.

The jacks enabled the erection stresses to be transformed smoothly and easily into the stress condition of the fixed arch. They also permitted the application of pressures to eliminate the tension on the upper chord shoes, thereby improving conditions of stress distribution through the arch.

The removal of erection stresses by this method was first tried on the Rainbow Bridge at Niagara Falls, but the correction of stress distribution in this manner is thought to be an original attempt.

The span, a highway bridge over Inoura Narrows at the mouth of Omura Bay in the northwest of Kyushu Island, is intended to speed traffic traveling between Nagasaki and Sasebo.

The center span is 800 ft long and is supported by the braced fixed arch—total length of the bridge is 1,048 ft. Rise is approximately 113 ft.

At the site of the bridge, the narrows is about 690 ft wide at water level; both shores are composed of basaltic andesite and slope down at approximately 45 deg. Conditions were more or less ideal for an arch type structure.

Since transportation problems in the area limit the size of members that could be brought in, a braced rib arch was chosen in favor of a solid rib type. The live load used for design was 62 lb per sq ft uniform loading and wind load was assumed to be 51.2 lb per sq ft on 1½ times the area of the vertical surfaces of the structure.

The main arch truss is a pratt truss consisting of 32 panels—thickness of the truss is 14.9 ft at the crown and 39.2 ft at the abutments. Upper and lower chord has a box section with perforated cover plates.

• **Cantilever erection system**—The arch was erected using an overhead cantilever tieback system with erection bents installed on both approach spans The first three panels on either side were erected by cantilevering them freely from the upper and lower shoes. Four 2-in. dia forward cables were connected at the end of the third panel to the top of a 3.93-ft high erection bent. Tension was predetermined by adjustment of the cable length.

JACKING operation on the lower chords was the final step in closing the arch.

Four more panels were cantilevered beyond the third panel and then were connected by six forward cables to a 102-ft high erection bent. Again, tension was controlled by adjustment of the cable length. When the six cables were in place the cables to the third panel were removed.

Another four panels were then added to bring the total to eleven and another six cables were added to make a total of twelve. After the cables were attached to the high erection bent, the final four panels were added to bring the half arch trusses within the predetermined clearance of meeting at the crown.

• **Cable tension critical**—With the erection system employed, it is necessary to maintain careful control of the tension in the supporting cables. In this case, the adjustment was made with a set of adjustable links. The upper link consisted of two plates with eleven 1½-in. dia holes spaced 5 in. apart. The lower link consisted of three plates with ten holes of the same diameter and spacing. Pinning these links together through various combinations of holes gave different lengths of link in approximately 1-in. increments. Adjusting range for the set was about 5 ft 3 in.

Tieback cables were connected from

BEFORE YOUR MASONRY *WEEPS*..

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"EASY ONE COAT"

TO KEEP IT CLEAN AND DRY

If your below-grade masonry is inclined to be damp, paint it *now* . . . don't wait for water seepage and freezing to bring on cracks and crumbling!

One coat is all you need! A quick, positive method of beautifying and keeping masonry dry and clean. And it's backed by TRUSCON, the world's best known name in waterproofing materials.

SEND COUPON NOW FOR FULL DETAILS!

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the erection bent to the embedded anchorage steel. Twelve 2-in. dia cables were used and these were adjusted through the use of adjusting tackle. Adjustment range for these cables was about 28 in.

The length of forward and tieback cables at the third panel was calculated so that the short erection bent would remain vertical as the next four panels were added and leave a margin of 8 in. in cable adjustment which could be taken up or released by the link system.

The length of forward and tieback cables at the seventh and eleventh panels was calculated so as to make the high erection bent lean backward about 6 in. at the top. Adjustment margin for cables at the seventh and eleventh panels was 8 in. and 16 in.

Precise measurement of cable tensions had to be made throughout erection, and since the fluctuations in values as measured by a prepared tensiometer were considerable, other methods had to be devised. The first method used a transit hung from the upper part of a forward cable. A rod was held at the lower part of the cable and readings were taken through a target hung at the center of the cable. In this way, sag and tension could be calculated.

Another method used had a piano wire strung parallel with the forward cable. A spring balance was used to pull the wire to the same shape as the cable and in this way the cable tension could be calculated. Variation in tension as measured by the two methods was about 3%.

Member stresses could be measured by prepared meters and gages.

• **Closing the arch**—In the fabrication and erectoin of the bridge, each half arch truss has a vertical member at the crown for erection. After adding a jacking force at the crown, the vertical members were replaced by a permanent member and the halves were spliced together as a fixed arch truss.

To effect the closure, eight 300-ton capacity hydraulic jacks—one pair per chord—were provided at the crown. The first step was to apply jacking forces so that the forward cables were under full tension and the upper chords could be spliced. The cables were then disconnected and the lower jacking forces were applied, and the lower chords were then spliced.

As mentioned previously, the jacks were used also to remove tension on the upper shoes and create a more stable stress situation throughout the structure. In this relatively flat arch tensile reaction on the upper chord shoes is 207.9 tons under ordinary loadings, so 212 tons of compressive prestress was added to the upper chords. If this were not done, extraordinary loadings could create a maximum of 416.6 tons of tensile reaction on the upper shoes—207.9 tons plus seismic reaction of 148.4 tons and 60.3 tons under extraordinary temperature drops. It is obvious that it would be impossible to design such upper shoes whose tension anchor frame in the arch abutment would be strong enough.

By measuring the stress in the completed arch it is predicted that the tensile reaction on the upper shoes will be a maximum of 40 tons under the worst conditions of ordinary loading. To resist this reaction the upper shoes are anchored by eye bars.

Efficiency of the closure method and design is indicated by the fact that completed arch truss under full dead loading is only slightly more than 2 in. higher at the crown than was anticipated.

The main span was fabricated by the Yogawa Bridge Works, Tokyo. Chief engineer was Eiichi Murakami of the Construction Ministry of the Japanese Government.

Norwegian Power Project Will Add 10% to Output

The Norwegian government has announced plans for a hydro-electric plant which will boost the country's annual generating capacity by 10%. The plant will have an initial capacity of 400,000 kw, but a further development stage is envisaged which would bring the capacity up to 700,000 kw.

The plant, which will be built at Tokke in Telemark in the southeastern part of the country, is expected to cost nearly $560,000. The government is currently in negotiation with the International Bank over the possibility of a loan for the project.

Since the end of World War II, Norway has spent close to $560 million on hydro-electric projects, and the country's generating capacity has risen from 2,328,000 kw to 3,848,000 kw.

Portugal Will Get Long Span

Before the end of the present year, Portugal will start on the building of a new, $3 million bridge over the Douro River to connect Porto, Portugal's second largest town, with Gaia.

The new bridge will feature a single, 886-ft reinforced concrete span, largest ever to be built according to official Portuguese sources.

6″ Clearance to Replace 80 Ton Kiln Flue!

Accurate Control and Lifting Capacity Means One Machine Does Work of Two

When Maxon Construction Company, Inc. of Dayton, Ohio recently tackled a 335′ new kiln installation as part of the expansion of a large Southwestern Ohio cement plant, they discovered that work clearances were mighty tight — as little as 6″ at times! But with their Model 3900-A Manitowoc Speedcrane the extremely cramped working space proved to be a problem easily overcome.

During the kiln installation an old "downcomer" flue, weighing an estimated 80 tons, was removed by the crane with only inches of elbow room. While placing the new kiln sections, the Manitowoc was handling 37 tons on a 40′ radius and had to walk, carry, swing, twist and turn all at once. At no time did the machine or the load touch either of two buildings it was working between. Ordinarily, on a precise setting job of this type, two cranes equipped with slings are employed. Because of the restrictive space here only one unit could be used effectively in the working area. Maxon Construction Company, Inc. chose the Manitowoc 3900-A for this assignment, not only for its sure control, but also because of the machine's tremendous lifting capacity.

Outfitting the 3900-A with an extra heavy 90′ boom, the Maxon people used the precise maneuvering features of the unit to full advantage. Accurate, effective control was possible with the smooth-acting torque converter equipped with a dual governor. Power for all functions without jerking is steadily supplied by accelerator control only.

Two other outstanding features on the crane are the independent boom hoist and independent swing. The extra heavy, (Ball Bearing) worm-driven hoist gives the crane operator exceptional control when handling precise erection jobs such as the kiln section. By utilizing the independent swing, greater maneuverability is obtained through a separate set of smooth disc type clutches. Another important factor on this job was the positive crane stability

Handling up to 37 tons on a 40′ radius calls for a crane with exceptional maneuverability — that's a Manitowoc!

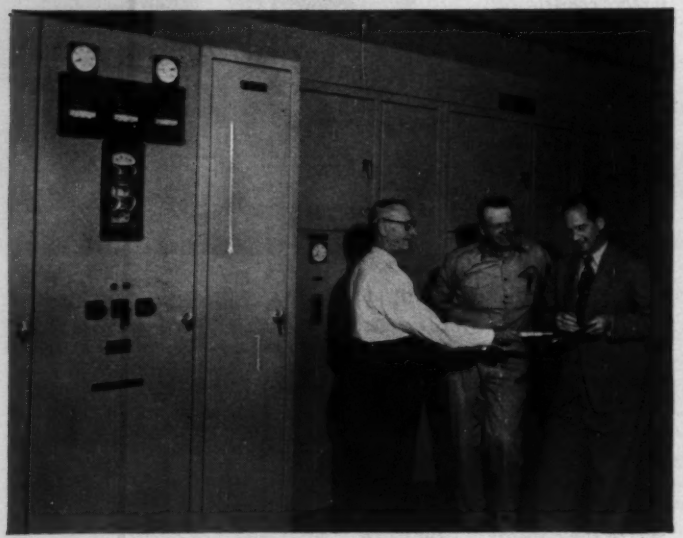
necessary because of the restrictive working conditions. The Manitowoc's wide, 20′4″ long crawlers provided a steady base for all of the tight operations.

The next time you face a difficult handling job, be sure to investigate *all* of the famous Manitowoc field-engineered features. See your Manitowoc distributor for the full story or write for complete literature.

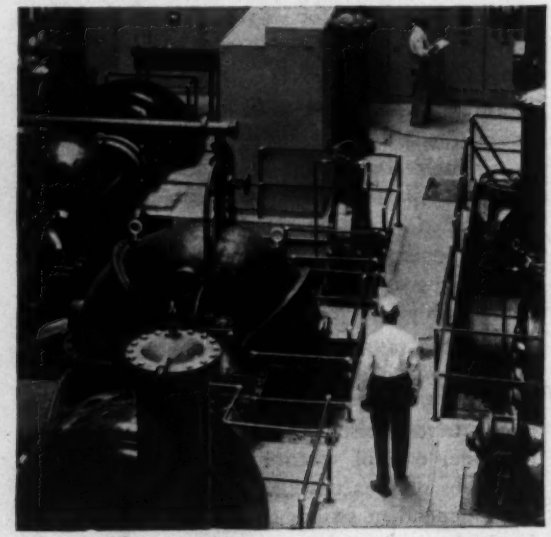
Manitowoc Engineering Corp.
Manitowoc, Wis.

ENGINEERING
REPORTS:

MILLIONS OF DOLLARS worth of crops in Reclamation District 108 depend on reliability of G-E pump drives and controls for vital irrigation. Aerial view shows Riggs Ranch automatic pumping station, one of several serving district.



RELIABILITY of G-E metal-clad switchgear and Limitamp control helps assure continuity of service at El Dorado station. Harold Wood, consulting engineer; Kenneth Brown, District 108 manager (l-r) planned installation with L. S. Barry, G-E Sales Manager.



42 YEARS OF SERVICE is the outstanding record of five General Electric 650-hp motors, several of which are visible above, in Rough and Ready pumping station. Limitamp control in background was added in 1949.

58,000-acre irrigation project proves performance, reliability of G-E equipment and service

Dependability of G-E equipment and service "could not be better" says Kenneth R. Brown, manager of Reclamation District 108 of Calif.

Reclamation District 108, a co-operative of individual farmers in Colusa and Yolo counties of California, electrified its irrigation pumping system half a century ago. It has been General Electric's privilege to provide most of the electrical equipment for this model project over the years.

"We can count on G.E.—we've learned that from experience," say Blackie and Wood, consulting engineers of San Francisco, who specify G.E. 100 per cent in expansion and modernization of the District's system. And manager Brown adds, "Both the products and the service we get from G-E Sales and Service Shop people could not be better."

Proved in service at the several pumping stations on the Sacramento River which comprise District 108 are 55 G-E pump motors from 25 to 650 hp, and many units of G-E control. Built for long operating life, G-E Tri-Clad* motors at automatic pumping stations require little or no maintenance. G-E Cabinetrol* and Limitamp* control panels help protect circuits, give centralized motor control, are custom-assembled from pre-engineered components to save engineering and installation time at the site.

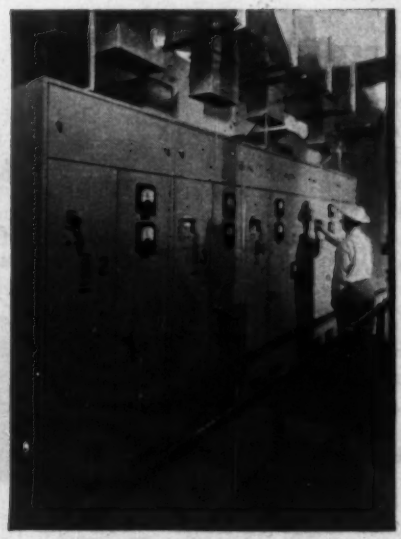
Years of engineering experience are available to G-E customers on projects like this. When you plan to install equipment or electrify tools for heavy construction jobs, remember G-E equipment is backed by engineering help in application, installation, and maintenance. For more information, contact your G-E Apparatus Sales representative. General Electric Company, Schenectady 5, New York. 664-38

* *Reg. Trade-marks of the General Electric Co.*

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

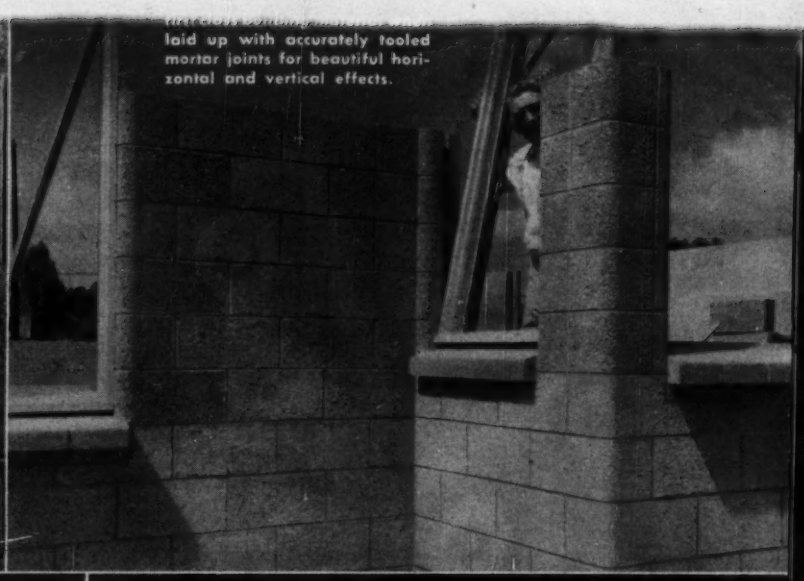
MINIMUM MAINTENANCE has been needed by this G-E 100-hp vertical pump motor over many years of service at the Boyer Bend automatic pumping station.



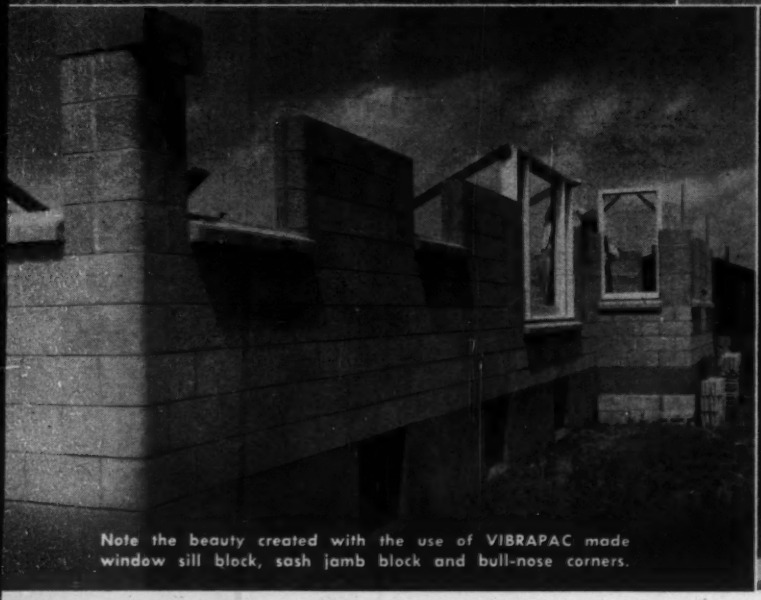
FACTORY ASSEMBLED to save installation time, this G-E Cabinetrol assembly controls five G-E synchronous motors at the Wilkins Slough pumping station.

HIGH DEPENDABILITY is typified by this G-E motor, one of three, slant-connected to pumps on riverbank, which have operated five years with no outage.

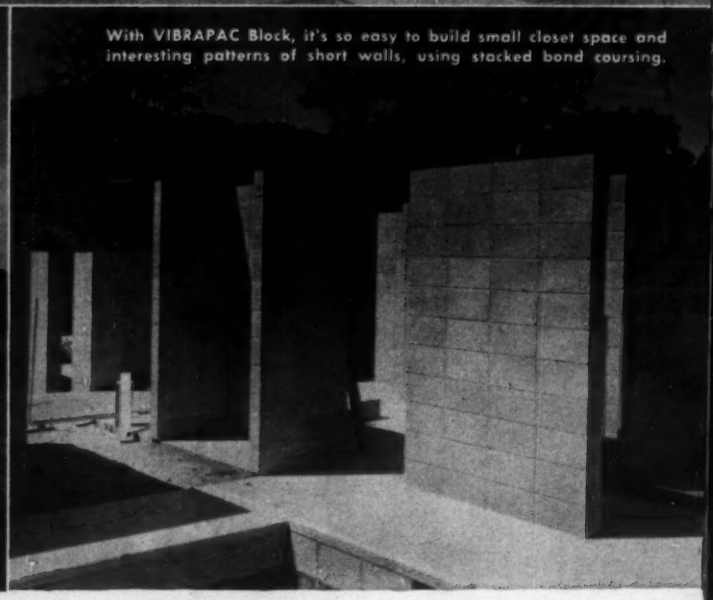
It's so easy to build with VIBRAPAC BLOCK



laid up with accurately tooled mortar joints for beautiful horizontal and vertical effects.



Note the beauty created with the use of VIBRAPAC made window sill block, sash jamb block and bull-nose corners.



With VIBRAPAC Block, it's so easy to build small closet space and interesting patterns of short walls, using stacked bond coursing.

MODULAR SIZES *make everything* FIT!

You avoid cutting and fitting, in many details of construction, when you build with VIBRAPAC Block. Their modular dimensioning coordinates with other modular building elements. Door and window openings, for instance, come out right for standard framing. No wasted time fitting door and window frames into openings. By eliminating block cutting and fitting, building costs are materially reduced.

Almost unlimited opportunities for creative architecture and structural versatility are provided by VIBRAPAC Block. Building code requirements are easily met . . . ruggedness with substantial structural loads . . . fire-safety . . . high insulation values. Write to us for name and address of nearest plant producing VIBRAPAC Block of highest quality.

BESSER Company

BOX 181 • ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

PROMOTERS OF HIGH QUALITY CONCRETE MASONRY FOR MORE THAN A HALF CENTURY

ONE OF FIVE new cranes, the HC-98 has hydraulic controls and 30-ton capacity.

Five New Link-Belt Speeders Debut

Five new Link-Belt Speeder truck-crane models ranging from 12½ to 35-tons in lifting capacity, and called Zephyrcranes, are said to offer contractors new highs in lifting and digging efficiency. All of the new models feature hydraulic control.

All of the units have hydraulically operated clutches that are self-compensating for heat and normal lining wear. They are convertible to standard front end attachments, and are available with torque converter power units. All are mounted on specially designed carriers with full-floating walking beam rear axle supports that allow travel over uneven terrain. Also available are screw-type outrigger jacks and pontoons, and removable rear outriggers.

Available on all models as an extra, are hydraulically-controlled reversing clutches for either or both main drums. This feature permits power controlled load lowering of main hoist line and jib whip line.

Models HC-58 and HC-68—12½ and 17½ tons capacity at 10 ft radius—are designed for fast and easy transportability. Both are fully convertible and are said to meet highway weight regulations in most localities. Other features include independent rapid boom hoist with power raising and power controlled lowering by means of hydraulically actuated clutches and a retractable high gantry which is raised or lowered under power. With remote control, an optional extra on the HC-68, the operator can control both travel and steer from the cab of the crane.

The HC-88, HC-98 and HC-108 Zephyrcranes—25, 30 and 35-ton capacity at 10 ft radius—are said to provide greater lifting capacity at greater radii. Though perhaps these three models are used more for lifting crane service, they are reportedly designed for easy convertibility to other front end attachments.

All three machines are available with a third drum for piledriving operations, and all clutches on each model, with the exception of the third drum clutch, are fully interchangeable. A hydraulically controlled swing brake is standard equipment. These models also feature independent rapid boom hoist and retractable high gantry as standard equipment.

A counterweight removal device using hydraulic jacks is available to speed "stripping" surplus weight to meet highway travel regulations and to facilitate addition of the counterweight at the job sight. LINK-BELT SPEEDER CORP., CEDAR RAPIDS, IOWA.

"Washboard" Window Gives Even Light Without Glare

A new kind of window controls glare and solar heat while evenly distributing light.

The window, a one-piece louvered panel of molded plexiglas, resembles an exaggerated washboard. Each louver of the window combines a clear transparent surface with an opaque surface. Named Lura-Lite louvered panels, the windows reflect some rays outside the building and diffuse and scatter others for non-glare lighting in the room.

Originally developed by Rohm & Haas, for industrial and institutional use, the louvered window is designed for the admittance of light only, but it may be used in combination with conventional frames to provide means for ventilation.

The Lura-Lite windows are usually installed so that the louvers are horizontal for maximum daylight control, but they may be installed vertically to provide a degree of visual privacy or to screen objectionable objects to the side.

The windows may also be obtained with translucent rather than transparent surfaces alternating with the opaque. This arrangement provides better light control during hours when the sun angle is low by scattering the light throughout the room.

The Lura-Lite windows, while they are available in sizes meeting standard commercial and institutional requirements, can be made to fit any specification. Each panel has a flange on either side for weathertight installation. LURIA-COURNAND, INC., HAVRE DE GRACE, MD.

PROMOTERS OF HIGH QUALITY CONCRETE MASONRY FOR MORE THAN A HALF CENTURY

There's a *Big* difference in steel buildings...

Handsome-looking! Most of it is a Butler steel building. Small difference in price—big difference in looks and performance.

take BUTLER factory shearing and punching for instance...

Watch 'em *erect* steel buildings if you want to find out why it makes such a *big* difference when it's a Butler. Every Butler structural fits. Every bolt hole lines up. Every panel joins exactly. No extra field tailoring.

Butler buildings are precision-formed in huge factories. Precise gang punching, drilling and jig-controlled shearing make each part match the engineer's specifications. Manufacturing precision makes Butler buildings permanent, attractive, climate-proof. Precision is just ONE feature that makes Butler your best buy. Mail coupon today for all the facts.

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For prompt reply address office nearest you:
BUTLER MANUFACTURING CO.
7418 East 13th St., Kansas City 26, Mo.
918 6th Ave. S.E., Minneapolis 14, Minn.
1028 Ave. W, Ensley, Birmingham 8, Ala.
Dept. 18, Richmond, Calif.

Please mail more information on Butler steel buildings.

Name_____

Address_____

City_____ State_____

MEN AND JOBS

R. M. Gillis

West Coast Road Engineer Retiring From State Post

Ridgway M. Gillis, deputy state highway engineer, will retire next week after 26 years of service with the California Division of Highways.

Assigned to his present post in 1950, when Fred J. Grumm retired, he has worked directly under state highway engineer G. T. McCoy in administering a highway program which this year involves an expenditure of $290 million for highway purposes.

Gillis was an early advocate of cement treated base construction and has helped California stretch the highway dollar by adding a small percentage of cement to available local base materials, thereby reducing the total thickness of base and pavement required. Until he became deputy highway engineer, he headed the construction, maintenance, equipment and materials and research departments as assistant state highway engineer in charge of operations.

A graduate of Whitman College with a B.S. degree in civil engineering from Massachusetts Institute of Technology, Gillis held various engineering jobs, including service with the Washington State Highway Department and the Pacific Bridge Company, before joining the California Division in 1929. Starting as a district construction engineer, he served for nine years as construction engineer for the Division of Highways, before his appointment as assistant state highway engineer in 1947.

Army Engineer Is Assigned To South Pacific Division

Col. A. E. McCollam, a combat veteran of World War II and Korea, has been assigned to the Corps of Engineers' South Pacific Division, with headquarters in San Francisco. As executive officer, he will assist Col. William F. Cassidy, Division Engineer, in a military and civil works program exceeding $130 million in work now underway.

Describing San Francisco as "the hub of one of the largest military construction programs in the United States," Col. McCollam pointed out that the civil works program—dams, flood control, navigation—is also assuming greater proportions. As examples, he cited the comprehensive Bay Survey now being conducted by the San Francisco District and the proposed Coyote Dam on Russian River near Ukiah.

Commissioned in the Corps of Engineers following his graduation from West Point in 1939. Col. McCollam entered World War II as commanding officer of 305th Engineer Combat Battalion and served in Europe until 1947. He later obtained his master's degree in civil engineering at California Institute of Technology, taught topography at the U. S. Military Academy, and served in the Korean war. At the time of his return to the states last year, he was chief of the Construction Branch in the Far East Command's Engineering Construction Division.

Col. A. E. McCollam

B. F. Miller

New ARBA Post for Miller

The American Road Builders' Association has named Burton F. Miller, an attorney who has been on the ARBA staff for 20 years, as deputy executive vice president. Although the post is officially new, Miller had previously been designated by Gen. Eugene Reybold, ARBA executive vice president, to serve as his deputy in his absence. Miller will continue to manage the Association's Contractors Division and its Materials and Supplies Division.

Turnpike Association Names Albert Wedeking President

Albert J. Wedeking, executive director of the Indiana Toll Road Commission, was elected president of the American Bridge, Tunnel and Turnpike Association at its annual convention held last month in Atlantic City, N. J.

A banker by trade, Wedeking was named to the Indiana post in 1953. He had previously served for 16 years as a member—and twice as chairman—of the Indiana State Highway Commission.

The American Bridge, Tunnel and Turnpike Association represents 59 of the nation's leading toll authorities.

Rayner Heads Joint Venture Of Five Canadian Companies

George W. Rayner of Rayner and Armstrong Ltd., Toronto, has been elected president of Iroquois Constructors Ltd., a joint venture embracing five major Canadian construction companies.

Now holding three major contracts for various phases of the St. Lawrence Seaway and Power Projects, Iroquois consists of Foundation Co. of Canada Ltd., Canadian Comstock Co. Ltd., Pentagon Construction Co. Ltd., An-

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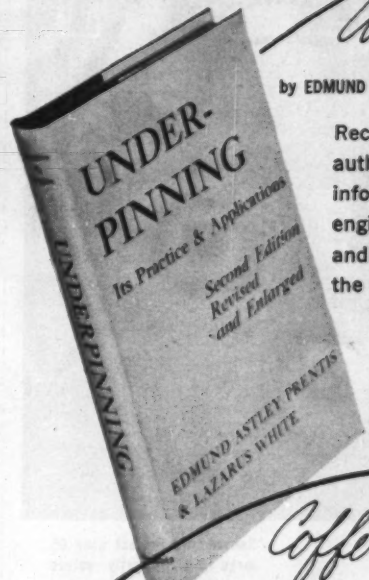

Underpinning
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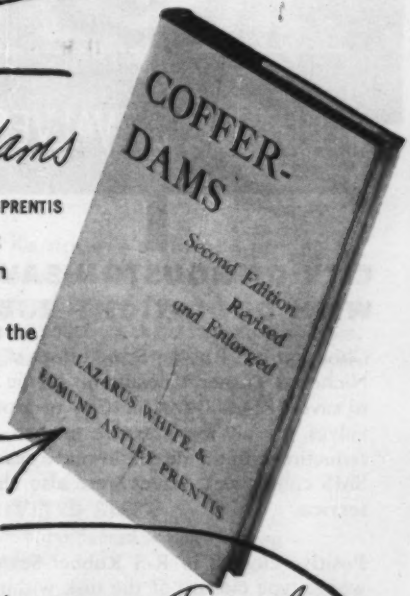
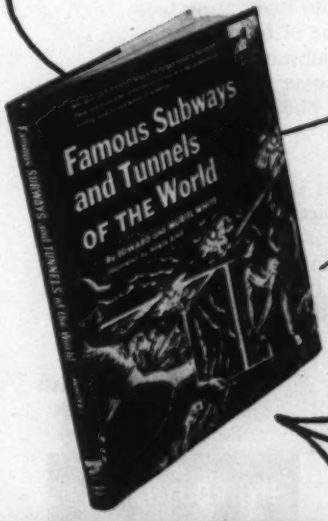
Recognized as the authoritative source for information in the field by engineers, architects and contractors all over the world.



Cofferdams
by LAZARUS WHITE & EDMUND ASTLEY PRENTIS
A trusted source-book covering actual design and construction of cofferdams as well as the theoretical features.



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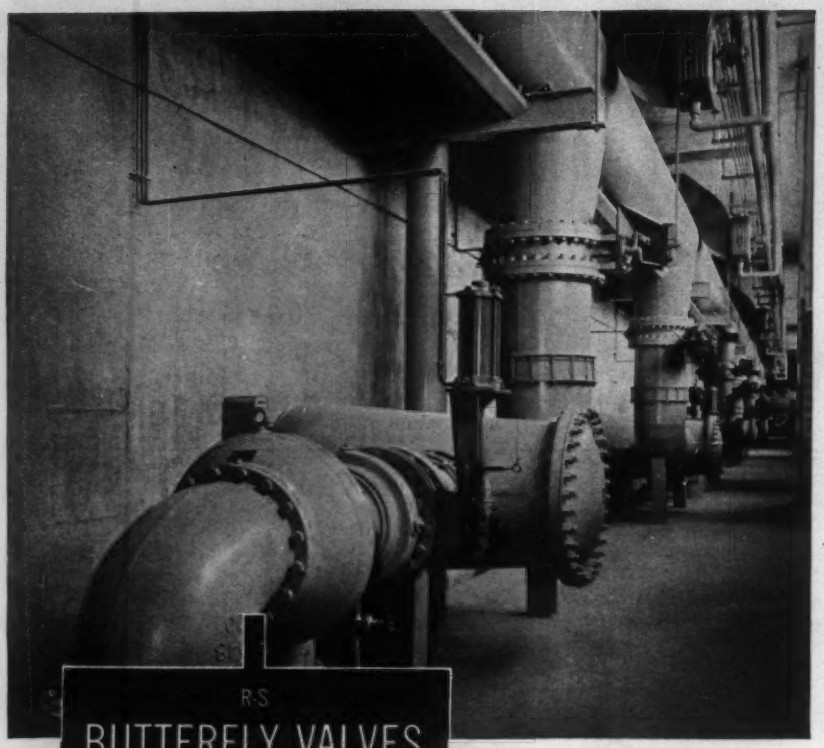

San Jacinto Project uses 65 large R-S Butterfly valves

CITY OF HOUSTON SAVES $124,000 WITH DROP-TIGHT RUBBER-SEATED VALVES

Choosing R-S Rubber-Seated Butterfly Valves enabled Freese, Nichols & Turner, Consultants on the San Jacinto River project, to save $124,000 for the City of Houston. Use of 65 of these valves for all low-pressure service gave a substantial space reduction and the direct, in-place cash savings over gate valves. SMS cone check valves were also chosen for pump discharge service.

Positive closure in R-S Rubber-Seated Valves is obtained by wedge-type closure of the disk within a one-piece rubber seat. Tough, flexible rubber seals the entire disk seat—including the area around the shaft bosses. Supervised testing of a six inch R-S Rubber-Seated Valve proved that after 6,000 closings the valve was still giving positive shutoff at 100 psig water.

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MEN AND JOBS

gus Robertson Ltd. and Rayner and Armstrong Ltd., all of Toronto. Other newly appointed officers include Lieut. Col. A. J. LeBlanc, executive vice president, and Walter Griesbach, vice president and chief engineer.

In connection with its work on the St. Lawrence, Iroquois has named:

• G. A. Campbell, a director of Pentagon, as contract manager of the Iroquois canal and lock project under construction for Canadian St. Lawrence Seaway Authority, Ottawa.

• J. W. Rayner, president of Rayner and Armstrong, as project director of the Canadian National Railways' relocation project near Iroquois for Hydro-Electric Power Commission of Ontario.

• T. A. Lazier as project manager of Ontario-Hydro's dam and powerhouse construction near Cornwall.

Retired Military Engineer Joins Atomic Energy Staff

Maj. Gen. Kenner F. Hertford, recently retired from the Corps of Engineers, has become manager of the Atomic Energy Commission's Santa Fe Operations Office, with headquarters in Albuquerque, N. M.

A graduate of the U. S. Military Academy with a civil engineering degree from Cornell University, Gen. Hertford has been associated with the atomic weapons program for several years, holding assignments with both the military and the AEC. At the time of his retirement, he was chief of research and development in the Office of the Chief of Staff.

In the SFO post, he succeeds Donald J. Leehey.

Public Health Engineers Will Visit Middle East

Assistant Surgeon General Mark D. Hollis, chief engineer of the Public Health Service, U. S. Department of Health, Education and Welfare, has left Washington, D. C., on a two month trip to Southeast Asia and the Middle East to review current health programs in those areas. With him is Hershal Engler, chief sanitary officer of the agency's Division of International Health.

During the tour, they will inspect U. S. Operations Missions and will discuss sanitary engineering and environmental sanitation programs with the mission chiefs and local sanitary engineers.

Countries included in their itinerary are Japan, Formosa, China, Thailand, India, Pakistan, Lebanon, Iran, Egypt, Switzerland and France.

Men and Jobs Briefs . . .

• **Associations**—The North Carolina section of ASCE names **Channing B. Brown** of Charlotte as president . . . **Donald H. Cornish** become executive director of the Cleveland Engineering Society.

• **Careers**—The Massachusetts Department of Public Works appoints **Robert E. Payne** assistant chief engineer of state-wide districts, succeeding **Fred D. Sabin**, retired . . . **Philip E. Mead** succeeds **Omer H. Brodie**, now a consulting engineer with the newly-formed firm of Foulke, Crist & Brodie, as city engineer for San Bernadino, Calif.

D. Devlin, formerly in Honduras with the J. A. Jones Construction Co. of Charlotte, N. C., is named highway budget analyst with the North Carolina State Budget Bureau.

• **Business**—**Harold A. DeRice**, Portland, Ore., specialist in the design of sawmills and other wood processing plants, joins the Vancouver office of Sandwell & Co., Ltd., consulting engineers . . . **S. A. Guerrieri**, formerly with Arthur G. McKee and Co., is appointed to the technical staff of The Lummus Co. of New York, designing engineers and constructors for the petroleum and chemical industries.

Osborne M. Saxton, last with the Corps of Engineers in Chicago, becomes chief engineer for Edenwald Contracting Co., general contractors, Whitestone, N. Y.

Paul D. Smith succeeds **Lee Turzillo** as executive vice president of Intrusion-Prepakt, Inc., Cleveland, Ohio, contracting firm specializing in heavy concrete construction and structural concrete maintenance.

Edward O. Edney, Jr. becomes project manager for the nuclear power program of the steam division of Westinghouse Electric Corp. . . . **S. L. Hoyle** is named resident engineer for William Freeman & Sons Engineers, Inc., High Point, N. C.

• **Education**—After a year's leave of absence during which he served as sanitary engineer with the Corps of Engineers in Orleans, France, and as sanitary engineer advisor to the U. S. Air Force in Germany and France, **Werner N. Grune**, associate professor of civil engineering, returns to Georgia Institute of Technology, where he'll conduct a research project on "Treatment and Disposal of Radioactive Sludges" under a National Science Foundation grant.

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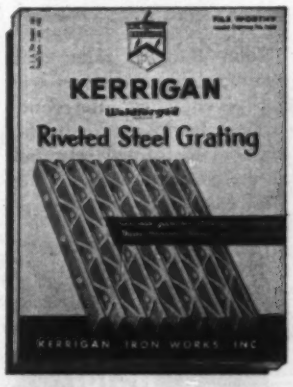

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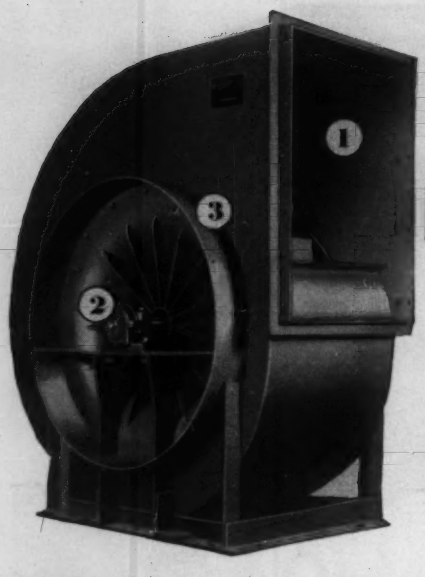

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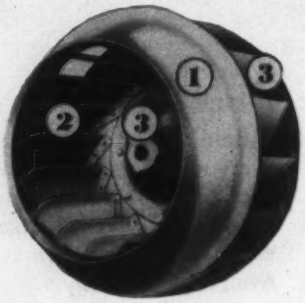

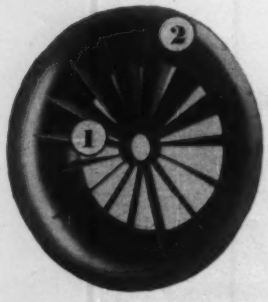

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OBITUARIES

Austin M. Rice, 57, New York structural engineer, died Oct. 18 in Montclair, N. J. During his association with the New York City consulting engineers' firm of Seelye, Stevenson, Value & Knecht, he was in charge of the structural design of such buildings as the New York University-Bellevue Medical Center and the Oregon State Capitol. Before joining the firm he helped design the New York Life Insurance Building and the Federal Court House, both in Manhattan. He was graduated as a civil engineer from Rutgers University in 1919.

William F. Freeman, 55, founder of W. F. Freeman, Inc., consulting engineering firm of High Point, N. C., died Oct. 15. He obtained his civil engineering degree from North Carolina State College in 1929 and founded the High Point firm the same year. During World War II he was chief construction engineer on a project in Brazil's Amazon River Valley. He also served as engineering and architectural agent for the Army and Navy during construction of service facilities throughout the southeast.

Fred E. Ayer, 78, dean emeritus and founder of the college of engineering at the University of Akron, died Oct. 9. He retired in 1947 after 32 years as dean of the engineering college. He went to Akron in 1914 from the University of Cincinnati, where he was in the civil engineering department for eight years. Early in his career he served as a draftsman for such companies as Pennsylvania Steel, American Bridge, New Jersey Bridge, and Great Falls Iron Works.

Justin J. McDevitt, 68, retired Charlotte, N. C., construction engineer, died Oct. 18. He received his civil engineering degree from Michigan State College in 1910. In 1924 he formed J. J. McDevitt Construction Co. and served as its president until his retirement in 1939.

Alfred Moosbrugger, 78, former engineer in the New York State Department of the Barge Canal, died Oct. 6 in Syracuse, N. Y. He retired from state service in 1942.

Roy M. Homewood, 63, construction engineer, died Oct. 7 in Chapel Hill, N. C. His career included construction work in North Carolina, Mississippi and Cuba. He also assisted Henry J. Kaiser in building dams and bridges on the West Coast.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Mass., Boston**—PARKING FACILITIES—BA 11/22—City, Real Estate Comn., City Hall Annex, construct and rental public parking facilities St. James Ave., Providence, Berkeley and Clarendon Sts. $1,200,000. Plans deposit $100. Thomas Worcester, Inc., 85 State St., engr.-archt. CD 12/22, under LB.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Mass.—S. Vitale, Beverly Airport, Beverly, Mass. LB $109,929, est. $120,000. hy. reconstr. Rte. 127, Beverly;

Mass.—Richardi & Sons Constr., Inc., 75 Uncatena Ave., Worcester, Mass. LB $114,296, est. $129,000. median crossovers alterations, Rte. 9, Worcester Turnpike, Southboro;

Mass.—Frank J. Shields, Inc., 91 Central St., Southbridge, Mass. LB $411,138, est. $435,000. hy. and bridge constr., relocation Millville Rd., Rte. 122, Uxbridge. Bids Oct. 18. CD 10/5.

† **Alexander Constr. Co.,** P.O. Box 324, Pleasantville, N. J. LB $397,890, est. $300,000-$400,000. runway, wid'n., airfield approach taxiway, lighting, Otis Air Force Base, ENG-19-016-56-22, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Oct. 18. CD 10/3.

▲ **RHODE ISLAND**—State R. I. & Prov. Plants, Div. Purch. Dpt. Admin., State House, Providence,

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I., CA, $1,598,324. Contract 5523, Bid 253, Bridge No. 121, bridge constr., drainage, Sakonnet River Bridge 250 approaches, Tiverton-Portsmouth. Bids Oct. 5. CD 10/11, under LB.

Berlenti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y., CA, $659,883, est. $700,000. Contr. 276, Section 2, Southwest Transmission Main, West Hartford, HARTFORD, CONN. Bd. Contract & Supply, Metropolitan Dist., 115 Broad St., Hartford, Conn. Bids Oct. 6. CD 10/12, under LB.

BUILDINGS—LB & CA

▲ **Consolidated Constructors, Inc.,** 807 Congress St., Portland, Me., CA, $1,432,200. SCHOOL for the DEAF, Mackworth Island, FALMOUTH, ME. Town, R.F.D. 4, Portland, Me. Bids Oct. 18. CD 10/6.

Camillo Profenno Co., 127 Marginal Way, Portland, Me. LB $552,100, est. $450,000. HIGH SCHOOL, FALMOUTH, ME. Town, William F. Soule, RFD No. 4, Portland, Me. Alonzo J. Harriman, Inc., 292 Court St., Auburn, Me., engr.-archt. CD 4/13.

Tocci Bros. Constr. Co., Inc., 38 Colonial Ave., Newton, Mass., LB, $753,000. HIGH SCHOOL addn., Waltham St., LEXINGTON, MASS. Town, 1475 Mass. Ave., Lexington, Mass. Bids Oct. 18. CD 10/12.

Donald D. Snyder & Son, Inc., 36 Comee St., Gardner, Mass., CA, $959,452. Junior-Senior High SCHOOL, Massachusetts Ave., LUNENBURG, MASS. Town, High School Bldg. Comn., Turnpike Rd., Townsend, Mass. Bids Oct. 14. CD 10/21, under LB.

▲ **Southern New England Contg. Co.,** 66 Sanford St., Hartford, Conn., CA, $1,000,000. WAREHOUSE expansion, Oak St., GLASTONBURY, CONN. Mutual Benefit Life Insurance Co. of New Jersey, c/o The Consolidated Cigar Corp., lessee, 109 Commerce St., Hartford, Conn. Bids Sept. 13. CD 9/7.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New York—BA 11/17—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, Contr. U. S. 89, for lowering the Lower Sill, footing of approach wall, floor of lock chamber, installing new lower gates and performing other misc. work at Lock No. 9, Erie Canal, Schenectady Co.; Contr. B. P. 55-55 for beach protection (hydraulic fill and springing) at Smith Point town of Brookhaven, Suffolk Co., $528,000. Plans deposit $10; adv. ENR 11/3. CD 3/16.

▲ **Pa., Pittsburgh**—BA 11/29—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 46, approx. 3 mi. 54- to 126-in. intercepting sewer; Contr. 47 approx. 3 mi. 36- to 60-in. intercepting sewer; Contr. 49 approx. 6 mi. 48- to 72-in. intercepting sewer. Plans deposit $100; adv. ENR 11/3.

▲ **Pa., Pittsburgh**—BA 12/6—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 46, approx. 3 mi. 54- to 126-in. intercepting sewer; Contr. 47, approx. 3 mi. 36- to 60-in. intercepting sewer; Contr. 49, approx. 6 mi. 48- to 72-in. intercepting sewer. Plans deposit $100; adv. ENR 11/3.

▲ **Pa., Pittsburgh**—BA 12/6—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 29, incl. approx. 1 mi. intercepting sewer varying from 14- to 24- in. inside diam.; Contr. 48 incl. approx. 2 mi. intercepting sewer varying from 12- to 30-in. inside diam. in open cut trench, with connections and other appurtenances. Plans deposit $100; adv. ENR 11/3.

▲ **Pa., Pittsburgh**—BA 12/6—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 64, intercepting sewers for Verona Proj., incl. subaqueous river crossing, open cut sewers, force mains, appurtenances and repairs to existing sewers; Contr. 65 incl. substructures and superstructures for Verona and Squaw Run pumping stations and Montrose Ejector Station; Contr. 66 incl. pumping and ejector equip. and appurtenances; Contr. 67, incl. electric work; Contr. 68, incl. plumbing, Contr. 69 incl. ventilation. Plans deposit $50; adv. ENR. 11/3.

▲ **Pa., Pittsburgh**—BA 12/13—Allegheny County Sanitory Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 28, incl. approx. 2 mi. 16- to 54-in. intercepting sewer; Contr. 45, incl. approx. 3 mi. 15- to 42-in. intercepting sewer; Contr. 50, incl. approx. 6 mi. 18- to 90-in., intercepting sewer; Contr. 51, incl. approx. 4 mi. 8- to 48-in. intercepting sewer; Contr. 52, inel. approx. 4 mi. 18- to 60-in. intercepting sewer. Plans deposit $100; adv. ENR 11/3.

▲ **Pa., Pittsburgh**—BA 12/20—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Pittsburgh, Zone 19, Contr. 34, constr. all foundations and substructures, main sewage conduits, and service tunnels for Pittsburgh Sewage Treatment Plant; Contr. 35, furnishing, installing pumping equip .and furnishing, electrical controls for main pumping station; Contr. 36, furnishing, installing mechanical equip. and process piping for Pittsburgh Sewage Treatment Plant and intercepting structures; Contr. 37, constr. river wall at Pittsburgh Sewage Treatment Plant; Contr. 38, furnishing installing sludge incineration equip. for Pittsburgh Sewage Treatment Plant; Contr. 39, constr. chimney at Pittsburgh Sewage Treatment Plant; Contr. 40, constr. superstructures at Pittsburgh Sewage Treatment Plant and interceptor structures; Contr. 41 electrical work at Pittsburgh Sewage Treatment Plant and interceptor structures; Contr. 42, plumbing work for Pittsburgh Sewage Treatment Plant and interceptor structures; Contr. 43, heating and ventilating work for Pittsburgh Sewage Treatment Plant and interceptor structures; Contr. 44, incl. misc. exterior work at Pittsburgh Sewage Treatment Plant. Plans deposit $100; adv. ENR 11/3. CD 3/27/52.

▲ **Pa., Pittsburgh**—BA 12/20—Allegheny County Sanitary Auth., 701 Civic Bldg., 200 Ross St., Zone 19, Contr. 30, incl. approx. 2 mi. 36- to 45-in. intercepting sewer; Contr. 31, incl. approx. 1 mi. 21- to 54-in. intercepting sewer; Contr. 32, incl. approx. 4 mi. 36- to 45-in. intercepting sewer; Contr. 33, incl. approx. 6 mi. 24- to 42-in. intercepting sewer; Contr. 53, incl. approx. 2 mi. 54 in. intercepting sewer; Contr. 54, incl. approx. 2 mi. 36- to 54-in. intercepting sewer; Contr. 55, incl. approx. 5 mi. 8- to 36-in. intercepting sewer. Plans deposit $100.

BUILDINGS—BA

Pa., Phila.—FIRE AND POLICE STATION—BA 11/10—Procurement Dpt. City Hall, Annex, fire and police station, 61 and Thompson Sts. Plans deposit $25. Bidders must be pre-qualified. CD 2/2/55, under LB.

▲ **N. Y., Flushing**—PHYSICAL EDUCATION—BA 12/1—Bd. Higher Educ., City College, Brett Hall, 136 St. and Convent Ave., New York, Zone 31, health and physical education bldg. of Queens College. $2,500,000. Plans deposit $60 general constr., $40 plumbing work, $30 heating and ventilating work, $40 electrical work. CD 3/30.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y. CA $3,032,990, est. $3,337,000. (9 bidders) elimination of grade crossings of Long Island R.R. with various streets in Hamlet of Baldwin and Village of Freeport, 0.35 mi. 1.56 RR mi. PSC 7278, PSC 8966, Nassau Co. CD 8/31, under LB.

▲ **Five Boro Constr. Co.,** 2 Lafayette St., New York 2, N. Y. LB $4,278,342. (10 bidders) general contract Greenpoint Incinerator, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Oct. 19, D 10/6;

W. E. Blume, Inc., 308 Putnam Ave., Brooklyn 16, N. Y. LB $428,440. electrical work (Brooklyn, N. Y.);

Astrove Plumbing & Heating Co., 36-14 32 St., Long Island City, N. Y. LB $99,164. heating and ventilating work (Brooklyn, N. Y.).

† **A. S. Wikstrom, Inc.,** Mottville, Skaneateles, N. Y. LB $421,524, est. $352,640, two cellular steel groins filled with gravel and capped with concrete and 8 sheet steel pile walls, 1,000 ft. apart, extending 300 ft. into Lake Erie, Erie Co., PENNSYLVANIA, U.S. Eng., Engineer Park, Buffalo 7, N. Y. CD 9/26.

▲ **McLean Contg. Co.,** Fidelity Bldg., Baltimore, Md. CA $6,615,353. Patapsco Tunnel Proj., Contr. PT-118, MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. CD 10/3, under LB.

Corson & Gruman, Inc., 33 and K Sts., N. W., Wash., D. C., LB, $671,286 paving roadway of Independence Ave. S.E. 2 St. to 19 St., WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids Oct. 18. CD 10/10.

BUILDINGS—LB & CA

Twin Harbor Estates, c/o Albert B. Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. $650,000. 50 HOUSES, BAYVILLE, N. Y.

Oaks Development Corp., c/o Karl Bloch, archt., 7 Landsdown Ave., Merrick, N. Y. Owner Builds. $400,000. 50 HOUSES, Montauk Hy., east of Rte. 112, BELLPORT, N. Y.

▲ **Cortland Constr. Corp.,** c/o Brown-Solomon & Co., 1016 Park St., Peekskill, N. Y. Owner Builds. $5,600,000. 350 HOUSES 100-acre tract on Hillside Ave., CORTLANDT, N. Y.

Cauldwell-Wingate Co., 101 Park Ave., New York 17, N. Y. LB $763,000. (9 bidders) student DORMITORY, NEW YORK, N. Y. Manhattan College, at office Eggers & Higgins, archts., 100 E. 42 St., New York, N. Y. Bids Oct. 17. CD 10/12.

Cherrywood Homes, c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y. Owner Builds. $760,000. 45 HOUSES, Old Bethpage Rd., PLAINVIEW, N. Y.

▲ **Pasadena Estates,** c/o Nassau Homes Realty Corp., 1 N. Merrick Ave., Merrick, N. Y. Owner Builds. $5,000,000. 250 HOUSES on 68 acre tract on Bethpage Rd. south of Old Country Rd., PLAINVIEW, N. Y.

▲ **Blitman Constr. Corp.,** 101 Park Ave., New York, N. Y. CA Est. $4,000,000. SHOPPING CENTER, 14-acre tract, Forest and Barrett Aves. to be called

(Continued on page 68)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

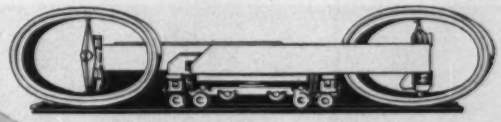
Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

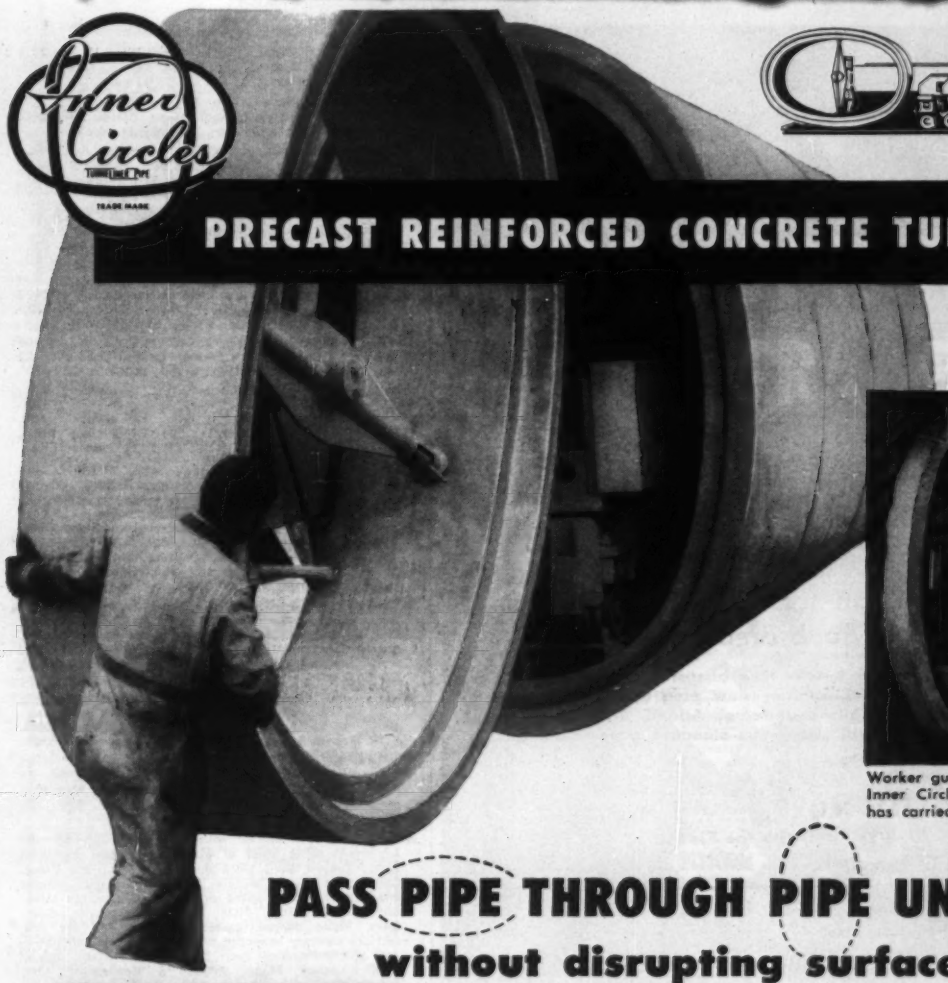
For additional reports see Construction Daily.

(Continued from page 66)

Inner Circles
TUNNELINER PIPE
TRADE MARK



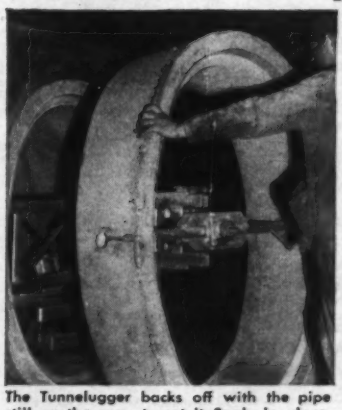
PRECAST REINFORCED CONCRETE TUNNEL PIPE



Worker guides an oval-shaped section of Inner Circle pipe which the Tunnelugger has carried through conduit already laid.

PASS PIPE THROUGH PIPE UNDERGROUND

without disrupting surface traffic!



The Tunnelugger backs off with the pipe still on the arms to set it firmly in place, assuring an even, tight joint.

Inner Circles methods using elliptical Tunneliner pipe now make it possible to pass full structural ring, precast, concrete pipe through conduit already laid—even on curves. Surface excavation is eliminated...traffic is undisturbed...work progresses regardless of weather conditions. Less equipment and fewer laborers are required, yet sewers are completed faster at less cost, with pipe strengths *pretested* by commercial laboratory procedures.

The new two-way Tunnelugger can operate in either direction from a centrally located shaft—quickly delivering and positioning Inner Circles at either end while digging continues at the other.

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67

▲ FLORIDA—State Road Dpt., Tallahassee, Fla.—Troup Bros., Inc., Box 168, Miami 33, Fla., LB, $562,118 (4 bidders) rock base, b. conc. surf., storm

Mountains, you'd better "run for the hills"! I've got my *Atlantic Pneumatic Rock Breaker.*

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(Continued from page 66)

Staten Island Plaza, PORT RICHMOND, N. Y. Jack Finkelstein & Assocs., c/o Leo V. Berger, archt., 356 Fulton St., Brooklyn 1, N. Y.

Sayville Woods Homes, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. $980,000, 82 HOUSES, Johnson Ave., SAYVILLE, N. Y.

▲ Psaty & Fuhrman, Inc., 369 Lexington Ave., New York 17, N. Y. LB $2,293,000. JUNIOR HIGH SCHOOL, SCARSDALE, N. Y. Bd. Educ., Brewster Rd., Scarsdale, N. Y. Bids Oct. 18. CD 9/29.

▲ Fred Lewis & Sons, Inc., Bainbridge, N. Y. CA Est. $2,000,000. mfg. and research PLANT, SIDNEY, N. Y. Bendix Aviation Corp., Scintilla Div., Sherman Ave., Sidney, N. Y. C.C.&R.B. Tallman, Utica, N. Y., archts. CD 10/7.

▲ East Hills Estates, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica, N. Y. Owner Builds. $7,800,000. 600 HOUSES, Rte. 25 A, SMITHTOWN, N. Y.

The Ride Homes, c/o Herman H. York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. $650,000. 22 HOUSES on tract on Plainview Rd., WOODBURY, N. Y.

John McShain, Inc., 3 W. Franklin St., Baltimore 1, Md., CA, $528,200. 1 and 2 story, brick, concrete, Glenmount SCHOOL No. 235 addn., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Oct. 5. CD 10/11, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲ Ky., Louisville—BA 11/10—Metropolitan Sewer Dist., 414 W. Jefferson St., Contr. 206, upper Dry Run Trunk Sewer Section E and Standiford Field Main, $1,000,000. Plans deposit $50, Morris Forman, sewer distr. engr. CD 7/12/54.

▲† West Virginia—BA 11/17—U. S. Eng., 237 Fourth Ave., Huntington, Zone 19, relocating Baltimore & Ohio R. R., Section 2, grading and appurtenanante work, Sutton Reservoir, Elk River, vicinity of Gillespie and Holy Junction, Braxton Co., CIVENG-46-022-56-18. CD 10/19.

▲ Ky., Louisville—BA 11/22—City, Metropolitan Sewer Dit., 414 W. Jefferson St., incinerator bldg. and equip. $3,000,000. Joseph & Joseph, Speed Bldg., archts. E. R. Ronald & Assocs., 554 S. 3 St., engrs. CD 8/25.

Va., Fairfax—BA 11/29—At office Harry L. Hale, sanitary engr., Fairfax Co., Fairfax, Contract No. 45 0.75 M.G.D. capacity secondary sewage treatment plant and pumping station. Plans deposit $20. CD 12/22/53.

▲† Fla., Cape Canaveral—MISSILE TEST CENTER—BA 12/1—At office Chief of Material, General Dynamics Corp., Convair Div., 1995 Bay Front Ave., San Diego, Calif., Air Force Missile Test Center, incl. access and camera roads, paved areas, steel, concrete structure, and buildings, distr. sys. for electricity, water, fuels, liquid oxygen, gaseous nitrogen and fire protection, sanitary sewerage sys., and heating, ventilating and air-conditioning sys. $3,500,000. Plans deposit $100. Daniel, Mann, Johnson & Mendenhall, 4201 Sunset Blvd., Los Angeles 29, Calif., archts-engrs.; adv. ENR 11/3.

BUILDINGS—BA

† Ala., Birmingham—TRAINING CENTER—BA 11/10—U. S. Eng., 2301 Grant St., Mobile, Zone 7, United States Army Reserve Training Center, new intersection of Green Springs Hy. and 20 Ave. South. Extended date. CD 9/20.

▲ Ky., Louisville—BANK—BA 11/15—Federal Reserve Bank, 411 Locust St., St. Louis, Mo., 3 story, bsmnt., brick bank. $3,000,000. Russell-Mullgardt-Schwartz, Van Hoefen, 1620 Chemical Bldg., St. Louis, Mo., archts. CD 4/13/54.

† Ga., Athens—TRAINING CENTER—BA About 11/25—U. S. Eng., 200 E. St. Julian St., Savannah, U. S. A. R. Training Center, Serial No. ENG-09-133-56-16.

† Ga., Rome—TRAINING CENTER—BA About 11/25—U. S. Eng., 200 E. St. Julian St., Savannah, U. S. A. R. Training Center, Serial No. ENG-09-133-56-16.

HEAVY CONSTRUCTION—LB & CA

▲ VIRGINIA—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond,

Va.—Albert Bros. Contractors Inc., P. O. Box 208, Salem, Va., LB $398,946 (6 bidders) b. conc. and bridge 2.56 mi. Route 460, F-04-3 (1), Bedford Co.;

Va.—Rea Constr. Co., P. O. Box 2015, Charlotte, N. C., LB, $1,446,742 (7 bidders) rein.-con., b. conc. and 4 bridges, grade separation 0.97 mi. Route 50, Fed. Proj IN-052-1 (1) Fairfax Co.;

Va.—Atlantic Bitulithic Co., 1400 Roseneath Rd., Richmond, Va., LB, $91,133 (4 bidders) b. conc. and curb, gutter 0.64 mi. Rte. 161, Proj S865 (1) Chesterfield Co.;

Va.—Clyde R. Royals, 350 W. Pembroke Ave., Hampton Va. 1, LB, $147,366 (2 bidders) soil aggreg. base, bit. top 3.87 mi. Route 17, F-316 (18) Essex Co.;

Va.—Slusher Constr. Corp., Box 1252, Roanoke, Va., LB, $279,986 (2 bidders) grading, drainage, incidentals and bridge Route 64, S-527 (5), Russell Co.;

Va.—Pendleton Constr. Corp., Box 549, Wytheville, Va., LB, $162,620 (2 bidders) b. conc. 0.55 mi. Route 4, U-420 (11), Wytheville Co.;

Va.—D. E. Worley Constr. Co., Rocky Mount, Va., LB $407,198 (5 bidders) graded aggreg. bit. top and bridge 1.49 mi. Rte. 220, F-320 (16), Franklin Co.;

Va.—Received no bids Oct. 19, b. conc. Alt. 1 at right turn at Fall Hill Ave., Proj. 1688-70 Fredericksburg. Bids Oct. 19. CD 10/5.

▲ **FLORIDA**—State Road Dpt., Tallahassee, Fla.—**Troup Bros., Inc.**, Box 168, Miami 33, Fla., LB, **$562,118** (4 bidders) rock base, b. conc. surf., storm sewers 2.517 mi. State Road 7, Job 8714-111, Dade Co.; LB **$192,550** (7 bidders) gr. rock base b. conc. surf., double 12x10 ft. culvert, curb, gutter, storm sewers, Job 8760-150, Dade Co.;

Fla.—**Thomas Smith**, Quincy, Fla., LB, **$99,008** (6 bidders) base with bit., drainage structures 6.645 mi. State Road S-368, FH-13-A, Job 5656-275, Liberty Co.;

Fla.—**R. H. Strickland**, Quincy, Fla., LB, **$433,405** (6 bidders) bit road mix, 17.145 mi. State Road S-67, FH-18-A, Job 5653-275 and Job 5663-175, Liberty Co.; LB **$213,987** (6 bidders) base with bit., 11.5 mi. State Road S-270, A, S-422 (1), Job 5959-250; State Rd. S-379, Job 5061-150, Gadsden Co.;

Fla.—**Springfield Constr. Co.**, Panama City, Fla., LB **$97,278** (3 bidders) bit. road mix., 88 ft. concrete slab deck girder bridge 0.947 mi. State Road S-30-A, Job 4651-152, Bay Co.;

Fla.—**J. D. Manly Constr. Co.**, Box 586, Leesburg, Fla., LB **$158,540** (6 bidders), rock base, surf. 5.317 mi. State Roads S-579-A, S-579 aand S-577, Jobs 1451-151 and 1455-151, Pasco Co.;

Fla.—**Coggin & Deermont**, Chipley, Fla., LB., **$152,630** (7 bidders), base with bit. surf. 8.846 mi. Road S-274, S-274 (3) Job. 5750-252 Calhoun Co.;

Fla.—**Jas. H. Craggs Constr. Co.**, Box 22, Gainesville, Fla., LB, **$89,123** (3 bidders), base with bit., 3.8 mi. S-401 (1), Job 5956-250, Wakulla Co.;

Fla.—**W. & M. Constr. Co.**, Williston, Fla., LB **$112,427** (8 bidders), based with bit. 7.668 mi. State Road S-344, S-426 (1), Job 3156-250 and Job 3156-150. Gilchrist Co.;

Fla.—**A. B. Covell**, Defuniak Springs, Fla., LB **$114,660** (8 bidders), base, surf. 160 ft. concrete slab deck bridge 3.331 mi State Road S-183-A, S-433 (1), Job 5254-250, Holmes Co. Bids Oct. 18. CD 10/5.

▲ **Sullivan-Long & Hagerty**, 2028 2 Ave. N., Bessemer, Ala., CA, **$1,495,746**, Contract 4, Village Creek Sewage Treatment Plant, BIRMINGHAM, ALA. Jefferson Co., Court House, Birmingham, Ala. Bids Sept. 20, awarded Oct. 3. CD 10/19, under LB

KENTUCKY—Commonwealth of Ky., Dpt., Hys., Frankfort, Ky.—**Lovell & Hart Constr. Co.**, 1108 Delaware Ave., Lexington, Ky. LB **$234,256.** (3 bidders) traffic bound limestone 6.595 mi. Cooper Pike, S 622 (1), SP116-59, Wayne Co.;

Ky.—**M. T. Codell & Co.**, Winchester, Ky. LB **$174,138.** b. conc. Class I surf. 0.69 mi. South Williamson-Nolan, W. Va. Rd., U. S. 529 (3), S 529 (2), SP 98-43 and 98-43, Pike Co.;

Ky.—**R. E. Gaddie, Inc.**, Bowling Green, Ky. LB **$108,988.** c. conc. 0.388 mi. Main St. in Horse Cave, S 50 (2), SP 50-140, Hart Co.

Ky.—**Carey Constr. Co. & H. C. Adams**, Citizens Bank Bldg., Lexington, Ky. LB **$403,061.** c. conc. 1.496 mi. Railroad St. in Irvine and Ravenna, S 503 (3) SP 33-423, Estill Co. Bids Oct. 14. CD 9/29.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Ky.—**Lovell & Hart Constr. Co.**, 1108 Delaware Ave., Lexington, Ky. CA **$147,495.** b. conc. 0.625 mi. Newport-Claryville Rd., U 546 (1), SP 19-131, Campbell Co.;

Ky.—**Wood & Bush**, 410 Ann St., Frankfort, Ky. CA **$101,137.** traffic bound limestone 2.075 mi. Wolfcoal-Altro Rd., S 219 (3), SP13-947, Breathitt Co.;

Ky.—**Licking River Limestone Co.**, West Liberty, Ky. and **Davis & Shelton Constr. Co.**, Sandy Hook, Ky. CA **$203,767.** (3 bidders) traffic bound limestone 9.025 mi. Plummers Landing-Park Lake Rd., S 624 (1), RS 35-80, Fleming Co.;

Ky.—**Greer Bros. & Young**, London, Ky. CA **$121,270.** traffic bound limestone 3.796 mi. Cawood-Smith-Brownies Creek Rd., S 164 (3), RS 48-108, Harlan Co.;

Ky.—**Kelly Contg. Co.**, 317 Wallace Ave., Louisville, Ky. CA **$222,660.** c. conc. 1.442 mi. Eminence Sts., S 466 (3), SP 52-227, SP 52-187, SP 52-167, Henry Co.;

Ky.—**M. T. Codell Co., Inc.**, Winchester, Ky. CA **$206,511.** traffic bound limestone 2.356 mi. Big Laurel-Toner Rd., S 522 (2), RS 97-922, Ferry Co.;

Ky.—**M. T. Codell Co., Inc. & C. D. Jett, Contr.**, Winchester, Ky. CA **$297,706.** traffic bound river grav. 7.858 mi. Warsaw-Owenton Rd., S 572 (1) SP 39-73, Gallatin Co.;

Ky.—**T. M. Hook**, Hardinsburg, Ky. CA **$210,270.** (3 bidders) traffic bound limestone 4.861 mi. Muldraugh-Otter Creek-Brandenburg Station Rd., S 216 (2), SP 82-243, Meade Co.;

Ky.—**T. C. Young**, Williamsburg, Ky. CA **$172,332.** traffic bound limestone 6.502 mi. Tompkinsville-McMillans Landing-Tennesse State Line Rd., S 629 (1), SP 86-74, Monroe Co. Grand total $1,683,148. Bids Oct. 14. CD 9/29.

† **Terry & Wright Inc.**, 4510 Poplar Level Rd., Okolona, Ky., CA, **$901,118**, outlet works, Rough River Reservoir, Grayson and Breckenridge Counties, CIVENG-15-029-56-21, KENTUCKY. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Bids Oct. 20, awarded Oct. 21. CD 9/16.

▲ **John Wile Constr .Co.**, 826 Humler St., Louisville, Ky. CA **$1,158,750.** Contr. A 1-2, addns. to Crescent Hill Filter Plant, LOUISVILLE, KY. Louisville Water Co., S Third St., Louisville, Ky. Bids Oct. 6, awarded Oct. 18. CD 10/11, under LB.

BUILDINGS—LB & CA

Smith & Jones, 936 W. Peachtree St., Atlanta, Ga., CA, **$960,000.** Franklin County Elementary and High SCHOOL, Franklin County Elementary and High Trade SCHOOL, Royston Elementary and High SCHOOL addn., Lavonia Elementary and High SCHOOL addns., Canon Elementary and Red Hill Elementary SCHOOLS in

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Franklin Co., CARNESVILLE, GA. State School Bldg. Auth., Kemper Bldg., Atlanta, Ga. Bids Sept. 7, awarded Oct. 18. CD 9/13, under LB.

Georgia Southern Contg. Co., 3330 Vineville Ave., Macon, Ga., CA, **$616,300.** Rockdale Elementary SCHOOL and Bryant Street SCHOOL in Rockdale Co., CONYERS, GA. State School Bldg. Auth., 41 Exchange Pl.,S.E., Atlanta Ga., Bids Oct. 11. CD 10/17, under LB.

▲ **E. A. Scott & Sons**, Box 946, Americus, Ga., CA, **$1,030,631.** Green County High SCHOOL, Greene County Training SCHOOL, Union Point Elementary SCHOOL, Siloam Elementary SCHOOL, GREENSBORO, GA. State School Bldg. Auth., 41 Exchange Pl.,S.E., Atlanta, Ga., Bids Sept. 29, awarded Oct. 18. CD 10/6, under LB.

Louis Briggs Constr. Co., Box 470, Macon, Ga., CA, **$921,801.** Jeffersonville Vocational SCHOOL, Jeffersonville Elementary and High SCHOOL, Mount Olive Elementary SCHOOL, Smith Elementary SCHOOL, Antioch Elementary SCHOOL, JEFFERSONVILLE, GA. State School Bldg. Auth., 41 Exchange Pl., S.E., Atlanta, Ga. Bids Sept. 13. CD 9/19, under LB.

A. B. Newton, Vidalia, Ga., CA, **$700,881.** Ruth Hill Elementary SCHOOL, North Side Elementary SCHOOL, South Side Elementary SCHOOL, NEWNAN, GA. State School Bldg. Auth., Kemper Bldg., 41 Exchange Pl., S.E., Atlanta, Ga., Bids Oct. 4, awarded Oct. 18. CD 10/7, under LB.

F. R. Hoar & Sons, 2808 19 Pl. S., Birmingham, Ala., CA, **$500,000,** one 1 story brick, concrete, and one 2 story, brick, concrete PLANT BUILDINGS, BIRMINGHAM, ALA. McKesson-Robbins, Inc., 1708 1 Ave. N. Birmingham, Ala. Horace M. Weaver, 2201 Highland Ave., Birmingham, Ala., archt. Awarded Oct. 17.

▲ **D. R. Selley Co.**, 409 4 Ave. South, Nashville, Tenn., LB, **$1,096,000** (13 bidders) MEN'S DORMITORIES A and B, Western State College, BOWLING GREEN, KY. State Div. Purchase, Frankfort, Ky. Bids Oct. 20. CD 10/13.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Wis., Green Bay**—BA 11/8—City, City Hall, 1 water filtration plant. $1,500,000. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 9/1.

BUILDINGS—BA

▲ **Ind., Clarksville**—SHOPPING CENTER—BA 11/26—Miracle Mile Shopping Center, Inc., c/o Garns and Moore & Assocs., K of P Bldg., Indianapolis, first unit of shopping center, $2,000,000. National Tea Co., lessee.

HEAVY CONSTRUCTION—LB & CA

▲† **The Savin Constr. Corp.**, 10 Village St., East Hartford, Conn., LB **$16,312,765.** main lock and auxiliary lock with 2 parellel lock chambers on Ohio side, New Cumberland Locks and Dam, Ohio River, OHIO and WEST VIRGINIA. U. S. Eng., 925 Federal Bldg., Pittsburgh 19, Pa. Bids Oct. 20. CD 10/5.

† **Merritt-Chapman & Scott Co.**, Standard Bldg., Cleveland 13, O. CA **$590,118.** dredging 210,000 cu. yd. from Lake Erie at Ashtabula, OHIO. U. E. Eng., Engineer Park, Buffalo 7, N. Y. CD 10/20, under LB.

† **Geo. W. Timmons Co.**, New Germany-Trebein Rd., Dayton, O. LB **$823,611,** est. $656,175. modifications Cells A, B, C, Bldg. 711A, Area A, Wright-Patterson Air Force Base, DAYTON, O. U. S. Eng., P.O. Box 59, Louisville, Ky. Bids Oct. 12. CD 10/5.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis,

Arcole-Midwest Co., 3225 Main St., Evanston, Ill., LB, **$2,874,387,** Contract C-1A, grading, drainage, structures, paving, roadway lighting 0.6 mi. Construction Section C-1A, Indiana-East West Toll Road, Lake Co. Bids Oct. 11. CD 9/16.

▲ **Great Lakes Dredge & Dock Co.**, 740 N. Plankinton Ave., Milwaukee, Wis., LB, **$1,078,932,** double bascule bridge over Kinnickinnic River at S. 1 St., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Oct. 19. CD 9/16.

BUILDINGS—LB & CA

Fabe Constr. Co., 3700 Reading Rd., Cincinnati, O. CA **$410,000.** 2 story, brick, rein.-con., steel APARTMENT, Columbia Blvd., CINCINNATI, O. Ohio Rivervista Apartments, Inc., c/o Marguerite Rule, 4320 Erie Ave., Cincinnati, O. Lee Firth, 3040 Madison Rd., Cincinnati, O., archt. Gustave M. Goldsmith, 1734 Belle Vista St., Cincinnati, O., engrs. Awarded Oct. 19.

▲ **City, Dpt. Health & Welfare**, City Hall, Cleveland 14, O. rejected bids Aug. 18, 5 story OUT PATIENT BLDG. at City Hospital, CLEVELAND, O. LB **$4,177,251,** est. $3,400,000. CD 8/23, under LB.

▲ **Suburbania Development Co.**, 6113 Diversey Blvd., Chicago, Ill. Own Forces. **$2,700,000.** 135 HOUSES in Norwood Park District, CHICAGO, ILL. L. J. De Bianco, 5501 Irving Park Ave., Chicago, Ill., archt.

▲ **Claude C. Dowe**, 9623 Shore Dr., Oak Lawn, Ill. Own Forces. **$2,000,000.** 138 HOMES, near CHICAGO, ILL.

▲ **Martin H. Braun & Co.**, 2209 Mayfair St., Westchester, Ill. Own Forces. **$10,000,000.** 402 HOMES, 2nd part of Martindale Estates, WESTCHESTER, ILL.

Jeffries-Dyer, Inc., P.O. 378, Ann Arbor, Mich., CA **$792,000,** general constr., 124-bed HOSPITAL, ADRIAN, MICH. Emma L. Bixby Hospital Bd., Adrian, Mich. Bids Sept. 27. CD 8/25.

▲ **Westbury Builders, Inc.**, 22737 E. Jefferson St., St. Clair Shores, Mich., CA Est. **$6,000,000.** 310 brick HOMES, Lakeshore Acres, ST. CLAIR SHORES, MICH.

Detroit Mortgage & Realty Co., 333 W. Fort St., Detroit 26, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲ **Mo., St. Louis**—BA 11/22—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, rubbish incinerator, plant adjacent to foot of East Grand Ave., chimney and furnaces and appurtenances. $1,220,000. Greeley & Hansen, 220 S. State St., Chicago, Ill., engrs. CD 7/26.

Tex., Denton—BA 11/22—City c/o J. L. Yarbrough, Mayor, water purification plant, $540,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. (Correction-bid date) CD 10/19.

HEAVY CONSTRUCTION—LB & CA

IOWA—State Hy. Comn, Ames,
Iowa—Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, Iowa, LB **$128,665.** c. conc., b. conc. resurf 0.652 mi. U-22 (7), Linn Co.; LB **$224,158.** c. conc. and b. conc. resurf 1,158 mi. U-224 (3), Linn Co.;
Iowa—R. B. Burch, Inc., 249 33 St. Dr. S. E., Cedar Rapids, Iowa, LB, **$117,729** grading 5.919 mi. F-909 (8), Johnson and Linn Counties; LB **$190,735,** grading 2.273 mi. U-159 (4) Wapello Co. Bids Oct. 18. CD 10/5.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,
Pool Constr. Co., Shawnee, Okla., CA **$591,456,** est. $588,000. Contr. 130, grading, drainage 4.944 mi. on turnpike at Catoosa, Rogers Co. Bids Aug. 30, awarded Sept. 8. CD 9/6, under LB.

OKLAHOMA—Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City,
Clark-Farrell Co., 401 Cotton Exchange Bldg., Memphis, Tenn., CA **$675,188,** est. $680,000, Contr. 129, grading, drainage structures 4.643 mi. turnpike, near Chelsea, Mayes Co. Awarded Sept. 8. CD 9/6, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—Cooper & Woodruff, Inc., 204 Mays Bldg., Amarillo, Tex., LB **$505,889,** flex. base, two course surf. tr. 12.537 mi. Hy. SH 67, Proj. S-2070 (1), Young and Stephens Counties; LB **$187,269,** gradinn, structures, base, surf. 18.544 mi. Hy. FM 1914, 2284, 2286, Proj. S 2022 (1), etc., Hale Co.;
Tex.—Collins Constr. Co. of Texas, P. O. Box 1192, Austin, Tex., LB **$92,616,** flex. base, b. conc. 4.991 mi. SH 349, Proj. S 1007 (2), Midland Co.; LB **$147,241,** flex. base, two crushed surf. tr. 5.413 mi. Hy. U. S. 183, Proj. F-257 (6), Williamson Co.;
Tex.—Schwope Bros., 6633 W. Commerce St., San Antonio, Tex., LB, **$164,898,** grading, structures, base, surf. 9.01 mi. Hy. FM 1217, Proj. S 1992 (2) Terrell Co.;
Tex.—Crea Brothers, Contractors, Route 3, Box 213, San Antonio, Tex., LB, **$115,826,** grading, structures, base, surf. 5.039 mi. Hy. FM 99, Proj. R 348-12-1, Live Oak Co.;
Tex.—Gulf Bitulithic Co., P. O. Box 2572, Houston, Tex., LB, **$176,136,** flex. base, 2 crush, surf. tr. 1.235 mi. Hy. SH 73, Proj. IN 1052 (29), Chambers Co.;
Tex.—J. M. Dollinger, Inc., P. O. Box 4227, Corpus Christi, Tex., LB, **$219,602,** flex. base, b. conc. 7.496 mi. Hy. SH 359, Proj. F-429 (21), Jim Wells Co.
Tex.— Kehe Constr. Co. & Charles B. Jones, P. O. Box 671 Sherman, Tex., LB, **$95,972,** grading, structures, base, surf. 3.232 mi. Hy. FM 1282, Proj. R 1379-1-3, Grayson Co.;
Tex.—Hugh McMillan, P. O. Box 1227, El Paso, Tex., LB **$260,226,** flex. base, b. conc. 6.91 mi. Hy. FM 2233 & 2316, Proj. S 2057 (2), El Paso Co.;
Tex.—Angelo Constr. Co., P. O. Drawer, 1631, San Angelo, Tex. LB, **$81,471,** grading, structures, base, surf. 5 mi. Hy. FM 2083, Proj. S 1971 (2), Crockett Co.;
Tex.—R. C. Buckner, P. O. 609, Jacksonville, Tex., LB, **$80,467,** grading, structures, base, surf. 4.905 mi. Hy. FM 2260, Proj. S 2071 (1), Panola Co.;
Tex.— The Jarbet Co., Box. 5008, Beacon Hill, San Antonio, Tex., LB, **$384,179,** soil cement base, fleb. base, b. conc. 8.958 mi. Hy. SH 6, Proj. F 471 (19), Waller Co.;
Tex., Fred Hall & Son and J. B. Clardy Constr. Co., Valley Mills, Tex., LB, **$776,863,** c. conc., flex. base, one and two course surf. tr. 2.153 mi. Hy. ST 174 and US 81, Proj. F 20 (9), ets. Johnson and Tarrant Counties;
Tex.—R. W. McKinney & Uvalde Constr. Co., P. O. Box 190, Nacogdoches, Tex., LB, **$579,047,** flex. base, b. conc. 19.617 mi. Hy. SH 19 and 64, Proj. S 204 (10), etc., Van Zandt Co.;
Tex.—Lee Moor Constr. Co., 205 Bassett Tower, El Paso, Tex., LB, **$112,939,** grading, structures, base, surf. 8.93 mi. Hy. FM 1228 and FM 1646, Proj. S 2063 (1), etc., Kent and Stonewall Counties. Bids Oct. 18. CD 9/28 and 10/4.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Austin Bridge Co., P. O. Box 1590, Dallas, Tex., LB **$452,493,** continuous rolled beam bridges at Ederville Rd., Cottonwood Creek, Randel Mill Rd. and Park Creek, Proj. D-FW 28, Tarrant Co. Bids Oct. 18. CD 9/27.

TEXAS—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
TTA—Austin Bridge Co., P. O. Box 1590, Dallas, Tex., LB **$436,914,** continuous rolled beam bridge at Village Creek, Proj. D-FW 29, Tarrant Co.;

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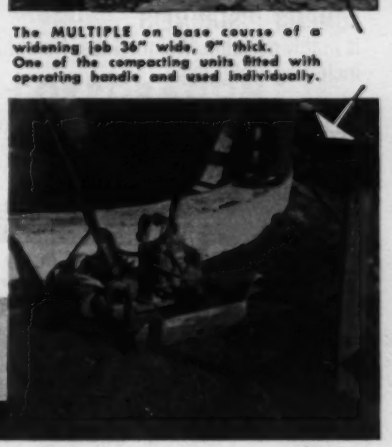

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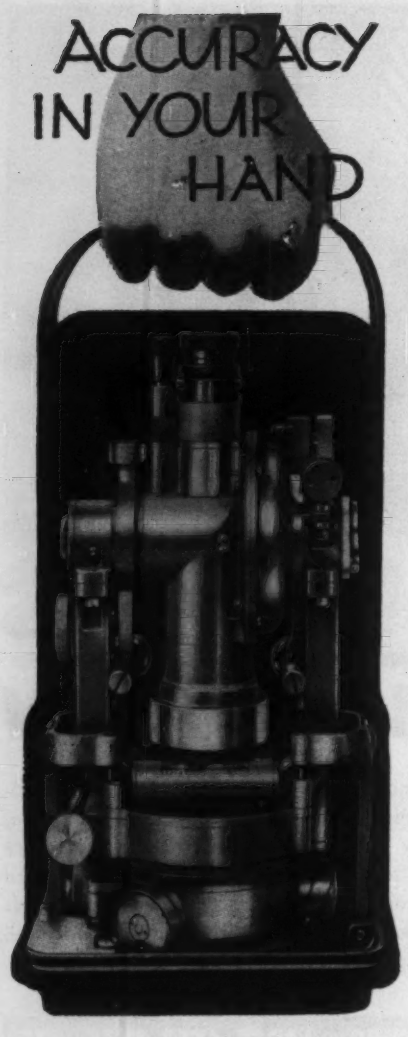

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TTA—John F. Buckner & Son, P. O. Box 76, Cleburne, Tex., LB $439,120, continuous concrete T-girder bridges at Sandy Lane Rd., Morrison Dr., Cooke's Lane, Henry Rd., Bedford Arlington Rd., Beady Rd., Dun Perry Rd. and Nelson St., Proj. D-FW 27, Tarrant and Dallas Counties. Bids Oct. 19. CD 9/27.

† **H. S. Leigland & Sons,** 2558 38 Ave. W., Seattle, Wash. LB $290,506, est. $246,933. (3 bidders) S.M. installation at Air Force Base, Inv. 56-5, GREAT FALLS, MONT. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Oct. 18. CD 10/10.

BUILDINGS—LB & CA

St. Louis Constr. Co., Dale d. Notestine, pres., 4144 Lindell Blvd., St. Louis 8, Mo. Owner Builds, $750,000. 101 RESIDENCES, Westridge Acres', Section 4 on Kehrs Mill Rd., between Clayton and Manchester Rds., ELLISVILLE, MO.

▲ **Mayer-Raisher-Mayer Constr. Co.,** Herman B. Mayer, pres. 119 N. 7 St., St. Louis 1, Mo., Owner Builds, $1,000,000. 100 RESIDENCES, 300-acre tract between Florissant and Halls Ferry Rds., north of St. Catherine St., and south of Hy. 140, FLORISSANT, MO.

▲ **Wakefield Constr. Co.,** 2801 N. Taylor St., Little Rock, Ark., Owner Builds, $2,500,000-$3,000,000 308-HOUSE Subdivision, near LITTLE ROCK, ARK. K. W. Lefever, 401 Victory St., Little Rork, Ark., consult. engr.

Westcott-Bowen Constr. Co., 1734 R St., Lincoln, Neb., LB, $543,730, general contract ADMINISTRATION BLDG., LINCOLN, NEB. University of Nebraska, 12 and R Sts., Lincoln, Neb. Bids Oct. 18. CD 9/30.

Parsons Constr. Co., 2501 Spring St., Omaha, Neb., CA $802,676, general constr. CHURCH, 69 and Cass Sts., OMAHA, NEB. First Methodist Church, 20 and Davenport Sts., Omaha, Neb. Steele, Sandham & Steele, Electric Bldg., Omaha, Neb., assoc. archts. Bids Aug. 9. CD 8/4.

Cothrum-Murray Co., Inc., 211 N. Field St., Dallas, Tex., Owner Builds, $385,000. Unit 2, 35 APARTMENT UNITS; $425,000, Unit 3, 45 APARTMENT UNITS, DALLAS TEX. CD 7/8.

▲ **Rob. E. McKee General Contractor, Inc.,** Box 562, El Paso, Tex., LB, $1,711,000, est $1,500,000. new Central Y.M.C.A. Bldg. EL PASO, TEX. Young Mens Christian Assn., 530 N. Oregon St., El Paso, Tex. Bids Oct. 11. CD 9/21.

Texas Gulf Building Corp., c/o Sterling Hogan, Sr., 7525 S. Park Blvd., Houston, Tex., Owner Builds, $365,000. 33 DWELLINGS, HOUSTON, TEX. CD 6/20.

Oldham Development Corp., 2600 Canal St., Houston, Tex., Owner Builds, $376,900. 40 DWELLINGS, HOUSTON, TEX. CD 9/23.

▲ **Jack Perry Co.,** 1110 Prospect St., Houston, Tex., CA, $363,400. Job 4, 41 DWELLINGS; CA $381,-115, Job 6, 45 DWELLINGS; CA $395,425, Job 7, 48 DWELLINGS, near HOUSTON, TEX. Jack Perry & Ralph Merion, 1110 Prospect St., Houston, Tex. Grand total $1,139,940. CD 6/13.

Croswell Corp., 3525 Westheimer St., Houston, Tex., CA, $379,810, 34 DWELLINGS, HOUSTON, TEX. Mark Croswell & Jno. D. Townsend, 3525 Westheimer St., Houston, Tex. CD 5/18.

▲ **Strickland & Beall Co.,** 1508 Fannin St., Houston, Tex., CA, $365,000 (G) 39 DWELLINGS; CA $348,-600 (H) 36 DWELLINGS; CA $378,160 (I) 40 DWELLINGS, HOUSTON, TEX. Miles Strickland & Assocs., 1508 Fannin St., Houston, Tex. Grand total $1,091,760. CD 9/14.

Carmody & Bostick, Mesquite, Tex., Owner Builds, $345,500. 25 DWELLINGS, MESQUITE, TEX. CD 5/5.

▲† **Swinerton & Walberg Contractors,** 200 Bush St., San Francisco, Calif., CA $13,500,000. two new BUILDINGS and related facilities, modification of 3 existing BUILDINGS and installing equipment, Atomic Energy Comn. Rocky Flats Plant Expansion, DENVER, COLO. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C. CD 9/14.

FAR WEST

Calif., Whittier—SCHOOL—BA 11/16—Whittier Union High School Dist., 610 Philadelphia St., reinforced brick Santa Fe High School. $783,000. Extended date. Wm. H. Harrison, 816 W. 5 St., Los Angeles, archt. CD 9/23.

Calif., Long Beach—ADMINISTRATION—BA 11/23—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, 22,800 sq. ft., 1 story, concrete, brick, administration bldg., Long Beach State College. $375,000. Plans deposit $25. CD 1/14.

Calif., San Luis Obispo—MAINTENANCE STATION—BA 11/23—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, District V Maintenance Station for Div. Hys. $350,000. Plans deposit $50.

BUILDINGS—SLC

▲ **Calif., Los Angeles**—OFFICE—A & B Investment Co., 730 S. Los Angeles St., soon lets contract 6 story rein.-con. office, 124 E. Olympic Blvd. $1,000,000. Douglas McLellan & John Fortune, 816 W. 5 St., archts.

HEAVY CONSTRUCTION—LB & CA

University of Idaho, Moscow, Idaho, rejected bids ice skating rink and adjacent facilities, MOSCOW, IDAHO. LB $209,600. Will re-advertise. CD 10/6, under LB.

WASHINGTON—State Hy. Comn., Olympia, Wash.—**MacRae Brothers,** 2733 4 Ave. S., Seattle, Wash., CA, $425,469, rein.-con. box girder bridge over Capitol Lake, 0.074 mi. Primary State Hy. 1, F.A.P. IN 001-2 (26), Thurston Co.;

Wash.—**E. McKellar,** Chelan, Wash., CA, $95,616, rolled steel beam bridge and steel girder bridges with concrete decks over Glacier Creek and Gallup Creek, 0.428 mi. Primary State Hy. 1, F.A.S. S-0993(2), Unit 1, Whatcom Co. Bids Oct. 18. CD 9/30.

WASHINGTON—State Hy. Comn., Olympia, **Newkirk Brothers,** 4345 E. 47 St., Seattle, Wash., CA, $632,781 (13 bidders) bridge over Swinomish Channel at LaConner, Skagit Co. Bids Oct. 18. CD 9/16.

WASHINGTON—State Hy. Comn., Olympia, Wash.—**United Paving Co.,** Geiger Field Quarry, Spokane, Wash., CA, $148,798, (3 bidders) surf., b. conc. paving 1.309 mi. Primary State Hy. No. 2, F.A.P. IN-002-6 (14), Spokane Co.;

Wash.—**J. W. Hardison,** Yakima, Wash., CA, $137,053. (5 bidders) crushed stone surf. 21.351 mi. Harlsten and Morrison Rds., F.A.S. S-1074 (1), Grant Co. Bids Oct. 18. CD 9/30.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Madonna Constr. Co., P. O. Box 918, San Luis Obispo, Calif., CA, $1,663,127, grading, paving 11.3 mi. U. S. 101 between 1 mi. north of Los Alamos and 4 mi. south of Santa Maria and rein.-con. undercrossing to provide 4-lane divided hy., Santa Barbara Co. Bids Sept. 28, awarded Oct. 18. CD 9/30, under LB.

† **Fred J. Early Jr., Inc., & John Delphia,** 369 Pine St., San Francisco, Calif., CA, $988,116, fish collecting facilities near Tracy, Alameda and Contra Costa Counties, CALIFORNIA. Bureau Reclamation, Dpt. Interior, P.O. Box 546, Winters, Calif. Bids Oct. 6, awarded Oct. 17. CD 10/12, under LB.

▲† **Winston Brothers,** 1532 S. California Ave., Monrovia, Calif., CA, $2,491,985 (5 bidders) Los Angeles River Imprvt., Corbin Ave. to Reseda Blvd., River Mile 48.92 to 47.12, Los Angeles Co., CALIFORNIA U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 11. CD 10/13, under LB.

Matt J. Zaich, 6828 Farmdale St., North Hollywood, Calif., LB, $630,242, est. $500,000, sanitary sewers in Terra Bella St. and Arleta Ave. Sewer District, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Oct. 19. CD 9/28.

Ben C. Gerwin Co., Inc., 112 Market St., San Francisco, Calif., LB, $453,800. (4 bidders) rein.-con. wharf and timber wharf, San Pedro, LOS ANGELES, CALIF. Los Angeles Harbor Dpt., City Hall, Los Angeles, Calif. Bids Oct. 19. CD 9/16.

AEC Constr. & Eng. Co., 2439 Riverside Dr., Los Angeles, Calif., CA, $693,000. installing process auxiliary and deluge piping, First Increment, NIMBUS, CALIF. Aero-Jet General Corp., 6352 N. Irwindale Ave., Azusa, Calif. CD 10/18, under LB.

BUILDINGS—LB & CA

Pacific Coast Builders, 1 South Park St., San Francisco, Calif., LB, $784,500. Washington SCHOOL, ALAMEDA, CALIF. Alameda City Unified School Dist., 1315 Oak St., Alameda, Calif. CD 11/17.

▲ **Tobin Co.,** 261 N. Robertson Blvd., Beverly Hills, Calif., CA, $3,256,000. 296 frame, stucco DWELLINGS, Crescent and Knoll Ave. in Tract 2707, BUENA PARK, CALIF. Crescent Homes & Gardens, Inc., 261 N. Robertson Blvd., Beverly Hills, Calif.

Taylor & Clark, Box 548, Arlington, Calif., LB, $585,668, Cypress SCHOOL, COVINA, CALIF. Covina School Dist., 475 N. 2 St. Covina, Calif. Bids Oct. 17. CD 10/5.

Continental Constr. Co., 4671 24 St. Rd., Sacramento, Calif., CA, $790,700. (5 bidders). Don Julio Junior High SCHOOL, Walerga Rd. near McClellan Air Force Base, DEL PASO HEIGHTS, CALIF. Grant Union High School Dist., Grand Ave., Del Paso Heights, Calif. Awarded Oct. 20. CD 9/6, under LB.

▲ **Stanton-Reed Co.,** 720 S. Palm Ave., Alhambra, Calif., CA, $1,500,000. 5 story, rein.-con. HOSPITAL addn., GLENDALE, CALIF. Physicians & Surgeons Hospital, 1420 S. Central St., Glendale, Calif. Geo. R. Postle, 1900 Melwood Dr., Glendale, archt.

Stoneson Development Corp., 3150 20 St., San Francisco, Calif. Owner Builds. $480,000. 32 HOME subdivision, Millbrae Meadows, MILLBRAE, CALIF. CD 7/29/54.

Wm. C. Crowell Co., 170 California St., Pasadena, Calif., CA, $575,900, est. $530,000. ADMINISTRATION BLDG. addn., PASADENA, CALIF. Bd. Educ., 351 S. Hudson Ave., Pasadena, Calif. Bids Oct. 14. CD 10/19, under LB.

Arstade Developers, 8015 Beverly Blvd., Los Angeles, Calif., CA, $407,700. 36 frame, stucco DWELLINGS, Arroyo Ave., Gilbert St. and Arthur Ave., POMONA, CALIF. Garey Development Co., 8015 Beverly Blvd., Los Angeles, Calif. Martin Stern Jr., 450 N. Beverly Dr., Beverly Hills, Calif., archt.

▲ **Barrett Constr. Co.,** 1800 Evans Ave., San Francisco, Calif., Owner Builds $1,000,000. 100-HOME Subdivision, RICHMOND, CALIF. Hardeson & DeMars, 225 Broadway, Richmond, Calif., archts.

O. D. Arnold & Sons, 6122 El Cajon Blvd., San Diego, Calif., Owner Builds, $484,900. 42 frame, stucco DWELLINGS, Arnold Knolls Annex, SAN DIEGO, CALIF.

Harris Constr. Co., P. O. Box 109, Fresno, Calif., LB, $804,932 (7 bidders) SCHOOL, SANGER, CALIF. Sanger Union High School Dist., Sanger, Calif. CD 2/25/54.

▲ **Family Land Co.,** 2918 W. Compton Blvd., Gardena, Calif., CA, $1,314,950. 91 frame, stucco DWELLINGS,

(Continued on page 74)

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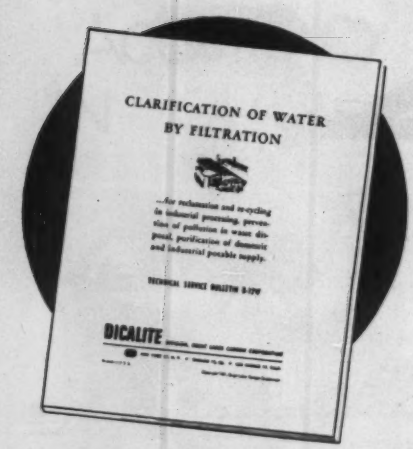

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(Continued from page 72)

Carmen St., Tract 20473, TORRANCE, CALIF. Kilkenny Homes Corp., 2918 W. Compton Blvd., Gardena, Calif.

Kemp Brothers, 8750 Mettler St., Los Angeles 3, Calif., LB $389,900, El Rancho High SCHOOL; LB $384,800 California HIGH SCHOOL, WHITTIER, CALIF. Whittier Union High School Dist., 610 W. Philadelphia St., Whittier, Calif. Bids Oct. 19. CD 9/23.

CANADA

BUILDINGS—BA

▲ **N. B., Fredericton**—HOUSING UNITS, etc.—BA 11/8—Central Mortgage & Housing Corp., 1032 Gottingen St. Halifax, N. S., 235 housing units with water, sewer service connections, walks, drives and grading, Camp Gagetown. $1,750,000. Plans deposit $100. S. C. Ings, c/o owner, regional constr. engr.

N. B., Fredericton—THEATRE—BA 11/8—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., theatre, Army Camp, $200,000. Plans deposit $100.

Que. St. Paul l'Ermite—WAREHOUSE—BA 11/10—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., inert stores warehouse, Building 509-A, $300,000. Plans deposit $100.

HEAVY CONSTRUCTION—LB & CA

McKay-Cocker Constr. Ltd., 233 Dundas St., London, Ont., LB, $155,276, apron bldg. addn. Malton Airport, TORONTO, ONT. Dpt. Transport, Hunter Bldg. Ottawa, Ont. Bids Oct. 11. CD 10/4.

BUILDINGS—LB & CA

▲ **Colony Investments Ltd.**, 56 Ranleigh Ave., Toronto, Ont., Owner Builds, $1,400,000, 9 story, 100x175 ft., steel, brick, block APARTMENT., 791 Vaughan Rd., TORONTO, ONT. CD 9/21/54.

▲ **F. H. McGraw Co. of Canada, Ltd.**, 128 Elmslie Ave., Ville La Salle, Montreal, Que., CA, Total est. $7,500,000. MILL BLDG. and CRUSHING PLANT substructures EAST BROUGHTON, QUE. Canadian Carey Mines Ltd., East Broughton, Que. Awarded Oct. 13. CD 9/30.

▲ **Charles Dancereau Ltd.**, 2545 Jacques Hertel St., Montreal, Que., LB $2,800,000. 4 or 5 story, bsmnt., H-shaped, stone, brick "Cardinal Leger" normal SCHOOL, rein.-con. fdn., MONTREAL, QUE. Les. Rev. Soeurs Ste. Anne, 1950 Provost St., Lachine, Que. Bids Oct. 3. CD 9/26.

▲ **Millcraft Investment Corp.**, 5950 Cote des Neiges Rd., Montreal, Que., Owner Builds, $1,800,000. 90 duplexes and triplexes each 2 story bsmnt. wood, brick frame, stone trim HOUSING program, St. Just St., MONTREAL, QUE.

H. J. O'Connell, Ltd., Canada Cement Bldg., Montreal, Que., Owner Builds. $900,000. reconstr. CAMP, incl. 3 houses, warehouse, equipment shed, offices, 5 dormitories equipment, SCHEFFERVILLE, QUE.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Cuba** — BA 11/25 — Primera Central Hidroelectrica Cubana, hereinafter referred to as PRICHEC, Edificio de la Lonja del Comercio, Sexto Piso, Havana, Cuba, 4 earth and rock fill dams, incl. Hanabanilla Dam, Jibacoa Dam and Saddle Dams Nos. 1 and 2, and appurtenant work, Contract C-2, for Hanabanilla Proj. Plans deposit $25. Knappen-Tippetts-Abbett-McCarthy, 62 W. 47 St., New York 36, N. Y., U. S. A., engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **Colombia**—Minstry of P. Wks., Bogota, received two close low bids from Empresa Moderna Colombiana, Bogota (a French Company) and Raymond Concrete Pile Co., 140 Cedar St., New York, N. Y., U. S. A., on bridge over Magdalena River at Puerto Berrio, for the Atlantic R.R. Estimated cost $4,000,000. Madigan-Hyland South American Co., 2804-41 Ave., Long Island City, N. Y., U. S. A. consult. engrs. CD 8/3.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Mich., Detroit**—Bd. Supervs. Wayne Co., City-County Bldg., water plant, Rockwood, $50,000,000. Leroy Smith, City-County Bldg., co., engr. Will advertise for engineers services. CD 4/12.

▲ **Okla., Chickasha**—City, voted bonds, reservoir water supply on Spring Creek. $1,890,000. Woodrow Bowers, city engr. CD 9/28.

Wash., Aberdeen—City, City Hall, rehabilitate domestic water sys. $500,000; low dam and pipe line to deliver industrial water supply to new pump mill. $300,000. J. W. Cunningham & Assocs., Portland Trust Bldg., Portland, Ore., consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Colo., Boulder**—City, City Hall, bond election Nov. 8, sewage treatment plant. $1,100,000. CD 2/25.

▲ **Conn., Hartford**—The Metropolitan Dist., Wm. A. D. Wiert, mgr., 115 Broad St., storm sewers. $1,000,000-$2,000,000.

Ore., West Slope—West Slope Sanitary Dist., 3804 S. W. Sheffman Rd., bond election Nov. 8, sewerage sys. $700,000. Stevens & Thompson, 732 S. W. 3 St., Portland, consult. engrs.

▲ **Tex., Amarillo**—City, City Hall, 3.7 mi. 60- to 102-in. storm sewers, incl. drainage area between Fillmore and 16 Sts. on Canyon-Amarillo Expressway, $1,017,043.

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† Wash., Bremerton—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, sewer lift stations and trunk lines to connect Puget Sound Naval Shipyard sewers with Bremerton sewage treatment plant. $762,000. Gellert, Griffin, Carey & Assocs., Central Bldg., Seattle Zone 4, consult. engrs. CD 9/30/54, under Unclassified.

BRIDGES

▲ Calif., Los Angeles—Los Angeles County Flood Control Dist., 2250 Alcazar St., bridges over Dominguez channel, Main St. to Pacific Coast Hy., Wilmington. $1,312,000. H. E. Hedger, c/o owner, engr.

EARTHWORK, WATERWAYS

▲† Alabama-Georgia—U. S. Eng., Grant St., Mobile, Ala., hydroelectric power plant, gated spillway and appurtenances, Fort Gaines Proj., Chattachoochee River, Ga. Total $86,000,000. Erik Floor & Assocs., Inc., 139 N. Clark St., Chicago, Ill., consult. engr. CD 8/17.

▲ Calif., Los Angeles—Los Angeles County Flood Control Dist., 2250 Alcazar St., constr. Broadbury Channel from Royal Oak Dr. to Santa Fe Reservoir, rein.-con. lining, Duarte, $575,000; imprv. Dominguez Channel upstream from Vermont Ave., Gardena, $750,000; rein.-con. Maddock Canyon Channel from outlet to Royal Oak Dr., Duarte, $205,000; East Whittier drain extension, East Whittier, $200,000. H. E. Hedger, c/o owner, engr.

▲ Quebec—Quebec Hydro-Electric Power Comn., Quebec City, generating station at Outardes and Manicougan Rivers to supply power for Canadian British Aluminum Co.'s aluminum plant at Bale Comeau, $70,000,000.

AIRPORTS

▲ Calif., Los Angeles—RUNWAY, TAXIWAY, ETC.—Los Angeles Dpt. of Airports, City Hall, new runway and taxiway, $773,650; widening passenger loading apron, $230,000; new taxiway, $99,000; public auto park, $100,000. T. Tommy Tucker, c/o owner, engr. CD 5/16/45.

Mont., Billings—ADMINISTRATION BLDG.—City, City Hall, plans by Cushing & Terrell, 1333 N. 27 St., admin. bldg. at municipal airport, $400,000-$600,000, Sam Ward, city engr. CD 3/4/53.

▲† Neb., Lincoln—AIR FORCE BASE IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha, Lincoln Air Force Base, airfield paving, fuel dispensing, maintenance and training, medical, storage, personnel and administrative facilities. $6,000,000.

▲† N. M., Alamogordo—AIRPORT IMPRVS.—U. S. Eng., Box 1538, Albuquerque, 80 mi. gravity water main $1,000,000-$5,000,000; armament research storage under $100,000 dental clinic $100,000-$500,000, Bids in November; cold storage bldg., $100,000-$500,000, chapel $100,000-$500,000. Bids in December, above work at Holloman Air Force Base.

▲† N. M., Albuquerque—AIRPORT IMPRVS.—U. S. Eng., Box 1538, refueling apron, taxiway, access road, hydrant refueling facilities, $500,000-$1,000,000, CD 2/19/54; build-up shop, $100,000-$500,000; AIE shop, $100,000-$500,000; hydrant refueling facilities, bulk storage, pump house at parking apron, $100,000-$500,000; hangar, maintenance shop, ammunition storage, paving and utilities, $100,000-$500,000, above work at Kirtland Air Force Base. Bids in November.

▲† N. M., Clovis—FUEL PUMP HOUSES—U. S. Eng., Box 1538, Albuquerque, fuel pump houses, pump, water separators, fuel, water and electric lines, Clovis Air Force Base. $1,000,000-$5,000,000. Bids in December. CD 10/23/51.

▲† N. M., Roswell—AIRPORT IMPRVS.—U. S. Eng., Box 1538, Albuquerque, secondary road $100,000, warehouse $100,000-$500,000. Bids in November; harmonization range, taxiway paving, grading, drainage, marking, lighting $1,000,000-$5,000,000; 3 story, rein.-con. dormitory $1,000,000-$5,000,000; ordnance storage $100,000. Bids in December, above work at Walker Air Force Base. CD 8/28/51.

▲† N. Y., Mitchel Field—RUNWAY—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by William H. McFarland, engr.-archt., 333 Front St., Binghamton. runway extens. at Mitchel Air Force Base. $1,000,000-$3,000,000. CD 11/11.

▲† N. Y., Niagara Falls—AIRPORT IMPRVS.—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Brown, Guenther & Booss, 1860 Broadway, New York, Zone 23, misc, bldgs., paving, Package No. 2, $1,000,000-$3,000,000; plans by Crenshaw, Beardsley & King, 402 Herald Bldg., Syracuse, shop addn., $100,000-$500,000; infirmary, $100,000-$500,000, Niagara Falls Air Force Base.

▲† N. Y., Plattsburgh—AIRPORT IMPRVS.—U. S. Eng., 111 E. 16 St., New York, Zone 3, nose-wing hangars, $1,000,000-$3,000,000; chapel and educational wing, $100,000-$500,000; hydrant refuel system, Package No. 2, $500,000-$1,000,000; approach lighting Package No. 4, $500,000-$1,000,000, Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, Zone 17, engrs.; plans by Urbahn, Brayton & Burrows, 654 Madison Ave., New York, Zone 23, altering Bldgs. 29 and 30, $100,000, above work at Plattsburgh Air Force.

▲† N. Y., Rome—AIRPORT IMPRVS.—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Greenberg & Ames, and William H. McFarland, 303 Fourth Ave., New York, Zone 10, runway paving, $5,000,000; RDAC bldg., $100,000-$500,000; POL facilities FY-56, $1,000,000-$3,000,000; plans by Lockwood Greene Engineers, 41 E. 42 St., New York, Zone 17, misc.

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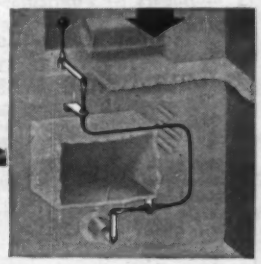

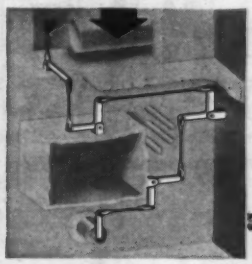

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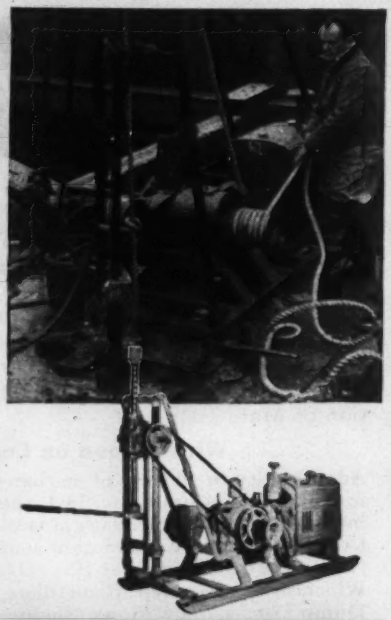

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bldgs. and airfield lighting, FY 1956, $1,000,000-$3,000,000, Griffiss Air Force Base. CD 3/29/51.

▲† Va., Fentress—AUXILIARY LANDING FIELD—Dpt. Navy, 18th St. and Constitution Ave., Wash. 25, D. C. Naval Auxiliary Landing Field, incl. jet runway. $9,000,000. No. appropriation. Williams, Colles & Blanchard, 3415 Virginia Ave., Newport News, consult. engrs.

PUERTO RICO

Puerto Rico—P. Wks. Dpt., San Juan, 2.47125 KM. State Rd. 641, San Agustin, Manati, $100,000; reconstr. several roads at Luquillo Natl. Forest, $96,000; 6.4940 Kms. of State Rd. 146, Dos Bocas Dam, Ciales to Utuado, $550,000; 2.7580 Kms. of State Rd. 155, Municipalities of Orocovis and Morovis, $300,000; 1.99 Kms. State Rd. 908, Tejas, Humacao, $80,000; 1.2 Kms. State Rd. 365, Fraile Sabana Grande, $70,000. CD 9/24/45.

▲ Puerto Rcio, Santurce—Propiedad Horizontal, Inc., Ponce Leon Ave. 17, Santurce, 8 story office. $1,000,000. Casas, Sanz & Casas, Inc., Condado 613, Santurce, consult. engr.

LATIN AMERICA

Mexico, Chihuahua—AIRPORT—Sria. de Comunicaciones, Mexico City, plans airport to be jointly built by Sria de Comunicaciones and Aeronaves de Mexico. $500,000.

PUBLIC BUILDINGS

Ala., Mountain Brook—SCHOOL—Jefferson County Bd. Educ., plans by Van Keuren & Davis, 3004 7 Ave. S., Birmingham, Junior High School. $500,000. CD 5/17.

▲ Calif., Eureka—SCHOOL—Eureka City Elementary and City High School Dist., 1915 "J" St., $1,300,000 bond election Nov. 28, school addns.

▲ Calif., Hayward—SCHOOL—Hayward Elementary School Dist., 1099 "E" St., voted $900,000 bonds schools addns. $2,500,000. CD 9/23.

▲ Calif., Hayward — SCHOOLS — Hayward Union High School District, 22300 Foothill Blvd. $3,000,000 bond election Feb. 14, Castro Valley, Mount Eden, South Mount Eden, Arroryo High Schools addn., San Lorenzo, and renovation of Hayward High School. $11,000,000.

Calif., Oakland—SCHOOL—Bd. Educ., 1025 2nd Ave. Joaquin Miller High School, $430,000; reconstr. main bldg. Whittier Elementary School, $425,000. CD 10/30/45.

▲† Calif., San Francisco — QUARTERS, etc. — Dist. P. Wks. Officer Twelfth Naval District, San Bruno, plans by J. Francis Ward, 215 Leidesdorff St., 156,350 sq. ft., rein.-con. bachelor officers' quarters, mess facilities, $2,400,000; bachelor officers quarters, $1,600,000, Treasure Island Naval Station. CD 11/9/51.

Calif., Santa Rosa—COUNTY OFFICE—Sonoma Co., Court House, plans by J. Clarence Peiciano, 4010 Montecito Ave., county office bldg., between Hy. 101 Freeway and Mendocina Ave. $750,000. CD 9/7/45.

▲ Calif., Sunnyvale—SCHOOLS—Fremont Union High School Dist., Sunnyvale, voted $3,000,000 bonds Oct. 18, two high schools. CD 1/27/54.

▲ Colo., Denver—SCHOOLS—School District No. 1, 414 14th St., bond election Dec. 6, four Senior High Schools, 5 Junior Highs and 5 elementary schools and 18 schools addns. $31,500,000. CD 9/20.

▲ Conn., Branford—HIGH SCHOOL—Town, Bd. Educ., Branford, plans by Keith Sellers Heine, 71 Oxford St., Hartford, Senior High School, off E. Main St. $1,600,000. CD 12/30.

▲ Conn., New Britain—HIGH SCHOOL—City, Dr. J. T. McCook, supt., 27 Hillside Pl., plans by Perley F. Gilbert & Assocs., Inc., 8 Merrimack St., Lowell, Mass., Southwestern Junior High School, near Lincoln School, on Steele St. $2,000,000. CD 7/20/54.

▲ Ill., Chicago — HOUSING — Chicago Housing Auth., 608 S. Dearborn St., Zone 5, plans by Fitch, Schiller & Frank, 100 W. Chicago St., Zone 10, 66 unit row houses, 40 and Langley Sts., $660,000; 32 unit row houses, between Lake Park Ave., 37 to 39 Sts., $340,000; plans by Quinn & Christiansen, 134 N. La Salle St., Zone 2, apartment bldg. and row houses, Lake and Damen Sts., $6,200,000; plans by Mayo & Mayo, 35 E. Wacker Dr., Zone 1, 201 unit apartment Pershing Rd. and South Park Ave., $2,000,000; CD 2/2/50; plans by Leonard Wayman, 11 S. La Salle St., Zone 3, 153 unit apartment, 45 and Champlain Sts., $1,600,000; plans by Mittelbuscher & Tourtelot, 36 S. State St., Zone 4, 64 unit row houses, 63 and Indiana Ave., $640,000.

▲ Kan., Leavenworth—SCHOOL—Bd. Educ., Leavenworth, voted $1,850,000 bonds Oct. 4, elementary school and Senior High School. Williamson & Loebsack, 2015 Gage Blvd., Topeka, archts. CD 9/28.

Mich., Madison Heights—SCHOOL—City, F. Foster Williams, supt. SCHOOLS, high school, Townley and Greig Sts. $500,000.

Minn., Ely—HOSPITAL—City, A. O. Knutson, clk., voted $550,000 bonds Oct. 11, hospital. Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. CD 2/15.

Minn., Hutchinson—SCHOOL—Bd. Educ., Dr. E. W. Lippman, clk., voted $650,000 bonds Oct. 11, school addn., remodeling existing bldg., $600,000. Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 10/5.

Minn., Minneota—SCHOOL—Bd. Educ., B. Tillemans, clk., voted $845,000 bonds Oct. 11, high school, school addns., $750,000. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts. CD 10/6.

Minn., Mound—SCHOOL—Bd. Educ., V. E. Clausen, clk., $700,000 bond election Nov. 15, grade school, etc. $650,000. Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. CD 5/24.

▲ **Minn., St. Paul**—SCHOOL—Bd. Educ., J. Voigt, school bd. archt., 615 City Hall, plans by Hammel & Green, 186 Fairview Ave. N., 1 and 2 story, wings, 270x540 ft., T-shaped Highland Park High School, Montreal and Snelling Aves. $2,000,000. Bids about Jan 1. CD 12/2.

Neb., Milford—SCHOOL—State Bd. Educ., Capitol Bldg., Lincoln, school at Milford Trade School. $500,000.

▲† **N. M., Albuquerque**—HOUSING—U. S. Eng., Box 1538, 3 general officers' family housing at Sandia Base, $1,000,000-$5,000,000. Bids in December.

▲ **O., Cincinnati**—SCHOOLS—Bd. Educ., 600 E. McMillan St., plans by Felsberg & Gillespie, Ingalls Bldg., Mt. Washington Elementary Junior High School 22 acre site on Corby Rd. opposite Sussex St., $1,500,000; plans by Pepinsky, Grau & Schrand, Union Trust Bldg., Glenmore-Werk Elementary School 5 acres, at Midway Ave. west of Queen City Ave., $740,000. CD 2/28.

▲ **O., Parma**—HOSPITAL—Parma Community Hospital, Patrick J. Cooney, fund drive chn., 9604 Enderby Dr., Cleveland, Zone 30, general hospital, on 54 acre site at Ridge and Ridgewood Dr. $5,000,000. CD 11/5/54.

Ore., Milwaukie—HIGH SCHOOL—Clackamas Union High School Dist. 5, Milwaukie, voted bonds, high school. $995,000. Freeman, Hayslip, Tuft & Hewlett, 2040 S. W. 3 St., Portland, archts.

▲ **Pa., Mount Lebanon**—GARAGE—Mount Lebanon Municipal Parking Auth., Mount Lebanon, parking garage, $1,000,000.

▲ **R. I., Providence**—SCHOOLS—City, City Hall, bond election Nov. 8, schools, South Providence Sect. $1,600,000. CD 12/6.

Tenn., Dayton—HOSPITAL—Rhea Co., Dayton, plans by Charles H. McCauley, Jackson Bldg., Birmingham, Ala., county hospital, $500,000-$600,000. CD 5/21/52.

Tex., Anahuac—SCHOOLS—Anahuac Independent School Dist., Anahuac, voted bonds, Oct. 8, high school unit, $475,000; G. W. Carver Negro High School addn. $420,000. CD 10/12.

▲ **Tex., Bryan**—SCHOOLS—Bryan Independent School Dist., Bryan, voted bonds Oct. 11, Elementary School No. 1, $350,000; Elementary School No. 2, $400,000; Junior-Senior High School unit, $750,000. CD 9/29.

Tex., Colorado City—HIGH SCHOOL REMODELING, etc.—Colorado City Independent School Dist., Colorado City, high school remodeling, gymnasium, $500,000.

Tex., Corpus Christi—HIGH SCHOOL—Corpus Christi Independent School Dist. 515 N. Carancahua St., plans by Donnelly & Whittet, 1220 Morgan St., Junior High School, Holly Rd. near Blvd. Drive-in Theatre. $750,000. CD 3/12/54.

▲ **Tex., Port Arthur**—SCHOOLS—Port Arthur Independent School Dist., Port Arthur, plans by Caudill, Rowlett, Scott & Assocs., 425 S. Main St., Bryan, Senior High School, $1,500,000; Junior High School, $1,250,000; group of classroom addns., $850,000; Elementary School No. 1, $750,000; Elementary School No. 2, $500,000; Elementary School No. 3, $725,000; Elementary School No. 4, $825,000. CD 10/17.

Tex., San Antonio—SCHOOL—Bd. for Texas State Hospitals & Special Schools, 4405 Lamar Blvd., Austin, plans by Walter C. Moore, c/o owner, constr. State School for Mentally Retarded Children, $500,000. CD 9/22/50.

▲ **Tex., Victoria**—SCHOOLS—Victoria Independent School Dist., Victoria, plans by Paul G. Silver Co., 1919 1-2 Cincinnati St., San Antonio, Senior High School, $2,475,000; plans by Arne G. Engberg, 2130 Welch St., Houston, Guadalupe-Lone Tree-Crescent Valley and F. W. Groos High School, $550,000; changing Patti Welder High School into Junior High School, $500,000; group of two 10-classroom elementary schools, $475,000. CD 10/17.

▲ **Va., Alexandria**—SCHOOLS—Bd. Educ., 418 S. Washington St., 5-year program, elementary school, western part of annexed area, $800,000; elementary school, downtown area, $625,000; elementary school on or near Washington Forest, $475,000; elementary school for west sect., $475,000; gymnasium at George Washington High School, $350,000.

Wash., Lacey—SCHOOL—School Dist. No. 3, Lacey, plans by W. A. Johnson & Assocs., N. Broadway, Everett, elementary school in Mountain View area east of Olympia, $500,000.

▲ **Wash., Seattle**—MECHANICAL ENGINEERING—University of Washington, Seattle, Zone 5, plans by Carlson, Eley & Grevstad, 432 Eastlake Ave., mechanical engineering bldg. $1,750,000. Work to begin in 1957. CD 2/14/49.

▲ **Wis., Watertown**—HIGH SCHOOL—Bd. Educ., Watertown, plans by Durrant & Berquist, 666 Loras Blvd., Dubuque, Iowa, high school addn. $1,200,000.

▲ **Alta., Edmonton**—SCHOOL—Edmonton Public School Bd., Edmonton, plans by Rensaa & Minsos, 9130 Jasper Ave., Junior-Senior High School to be known as Ross Sheppard composite high school. $2,225,000. CD 8/18.

▲ **B. C., Burnaby**—INDUSTRIAL SCHOOL—B. C. Govt., Parliament Bldgs., Victoria, plans by C. Campbell, Parliament Bldgs., Victoria, girls' industrial school, 268-acre site, Willingdon Ave. at Grandview Hy. $1,000,000.

COMMERCIAL BUILDINGS

Ala., Birmingham—HOSPITAL—Bd. Trustees Birmingham Baptist Hospital, 708 Tuscaloosa Ave., plans

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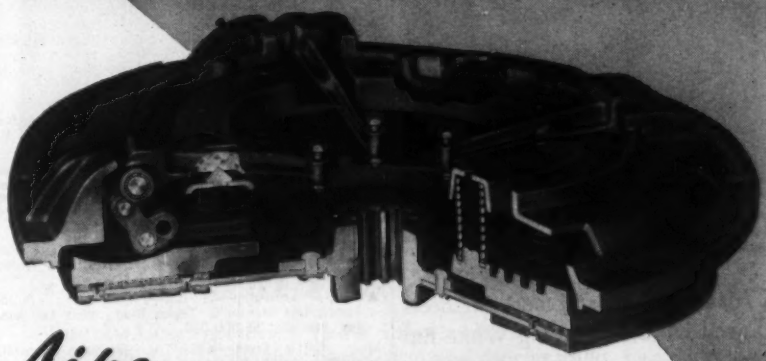

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Fig. II Stadia hair arrangement for our standard transits.

Fig. III Special stadia hair arrangement, furnished upon request.

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by Lawrence Whitten, Brown-Marx Bldg., fourth floor West End Baptist Hospital addn. $500,000. CD 5/1/51.

▲ **Calif., Livermore**—SHOPPING CENTER—Owner c/o Design Assoc., archts., 2090 Willow Pass Rd., Concord, shopping center, incl. 30 stores, cocktail lounge, restaurant and service station, $2,500,000. G. Fitch & J. W. Goodhue, 2090 Willow Pass Rd., Concord, consult. engrs.

▲ **Calif., Oakland**—COLLEGE—College of the Holy Names, c/o Milton T. Pflueger, archt., 580 Market St., San Francisco, 3 classroom wings, fine arts bldg., theater and auditorium, admin. bldg., convent, chapel, residence halls, gymnasium. Mountain View Blvd., near Redwood Rd., $4,000,000.

Calif., Palo Alto—MEMORIAL UNION—Bd. Trustees, Stanford University, Palo Alto, plans by Spenser & Ambrose, 251 Kearny St., San Francisco, memorial union, $900,000.

▲ **Conn., Hartford**—OFFICE—Josephine C. Tilney, trustee and the Elmo Corp., 57 Farmington Ave., plans by Bradford S. Tilney Assoc., 111 Whitney Ave. New Haven, 6 story, 56x176 ft., 60,000 sq. ft. office, 1057 Asylum Ave., $1,500,000, A. J. Masshi, 57 Farmington Ave., struct. engr.

Conn., West Hartford — SYNAGOGUE, etc. — Emanuel Synagogue, c/o Milton Nahum, atty., 500 Woodland St., Hartford, synagogue and school, east side of Mohegan Dr., 10½ acre tract, $500,000.

Idaho, Boise—CHURCH—First Methodist Church, 1012 State St., church $1,000,000.

▲ **Ill., Chicago**—STORE and OFFICE—Frank M. Whiston, Inc., 700 N. Michigan St., plans by Shaw, Metz & Dolio, 208 S. La Salle St., Zone 4, 6 story, 2 bsmt., store and office, Huron and Rush Sts. $3,200,000.

Ill., Evanston—RESIDENCE—The Cradle Society of Evanston, 2049 Ridge Ave., plans by Burnham & Hammond, 53 W. Jackson Blvd. Chicago, nurses and staff residence annex, $500,000.

▲ **Ind., Hammond**—OFFICE—Northern Indiana Public Service Co., Dean H. Mitchell, pres., 5265 Hohman St., 5-story office addn. at rear of present office bldg., corner Hohman Ave. and Russell St. $1,000,000.

Iowa, Mount Pleasant — DORMITORY — Iowa Wesleyan College, Mount Pleasant. Shaeffer-Trieschman Women's Dormitory addn. $500,000.

▲ **Ky., Lexington**—OFFICE—Professional Building Assoc., 603 Marion E. Taylor Bldg., office for doctors and dentists, $1,000,000.

Mich., Battle Creek—HOSPITAL—Michigan Association of Osteopathic Physicians & Surgeons, Dr. J. Paul Leonard, consultant, 13535 Woodward St., Detroit, osteopathic hospital, $500,000.

Mich., Bay City—HOSPITAL—Michigan Association of Osteopathic Physicians & Surgeons, Dr. J. Paul Leonard, consultant, 13535 Woodward St., Detroit, osteopathic hospital, $550,000.

▲ **Mich., Bloomfield** — HOMES — Prudential Investment Co., 1418 Cadillac Tower, Detroit, Oakland Hills Section, ranch homes, $5,000,000.

Mich., Detroit—HOSPITAL—Art Centre Hospital, 5435 Woodward Ave., Zone 2, brick, steel osteopathic hospital, $750,000.

Mich., Detroit—HOSPITAL—Detroit Osteopathic Hospital, 12524 Third St., Zone 3, branch hospital, 10 Mile Rd. and Lahser Rd. $600,000.

▲ **Mich., Detroit**—OFFICE—Standard Oil Co. of Indiana, 910 S. Michigan St., Chicago, Ill., 2 story bsmnt., brick, steel, concrete office, 8 Mile Rd. and James Couzens Hy. $2,000,000.

▲ **Mich., Flint**—HOUSING, etc.—James A. Welch, 1011 S. Washington St., Royal Oak, housing development, 1,800 brick homes, shopping center, 400 acre site in southeastern section, $25,000,000.

Mich., Marine City—HOSPITAL—Michigan Association of Osteopathic Physicians & Surgeons, Dr. J. Paul Leonard, consultant, 13535 Woodward St., Detroit, osteopathic hospital, $550,000.

Mich., Saginaw—HOSPITAL—Saginaw Osteopathic Hospital, 515 N. Michigan St., brick, steel, osteopathic hospital addn. $600,000.

Mich., Sheridan—HOSPITAL—Michigan Assoc. of Osteopathic Physicians & Surgeons, Dr. J. Paul Leonard, consultant, 13535 Woodward St., Detroit, osteopathic hospital, $550,000.

▲ **Minn., Columbia Heights**—SHOPPING CENTER—Lakeland Development Co., Rev. E. W. Anderson, pres., 2406 N.E. Buchanan St., Minneapolis, plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, shopping center, incl. 20 stores, Central Ave. between 43 and 44 Aves. N.E. $1,125,000. CD 10/12.

▲ **Minn., Duluth**—HOMES—W. Simonson & Son, c/o First Federal Savings & Loan Assn. with associates, 314 W. Superior St., Maple Knoll Subdivision, 63 rambler-type homes, incl. utilities as sewers, water and gas, curb-gutter, blacktop surf., Duluth Heights, $1,000,000.

Mo., Clayton (St. Louis 5 P.O.)—OFFICE—Syndicate forming, c/o Barken Realty & Constr. Co., 8008 Carondelet Ave., Clayton, Zone 24, 5 story, basmnt., brick, concrete, steel office on 90x190 ft. site, Bonhomme and Meramec Aves., $500,000.

▲ **Mo., Jennings** (St. Louis 21 P. O.)—DEPARTMENT STORE—Stix, Baer & Fuller Co., 601 Washington Ave., St. Louis, Zone 1, 4 story, bsmnt. department store and two other bldgs. for specialty shops and stores, service station, other facilities for shopping center on 38 acre tract, Jennings and Halls Ferry Rds., $5,000,000.

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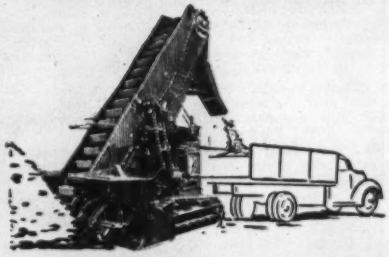

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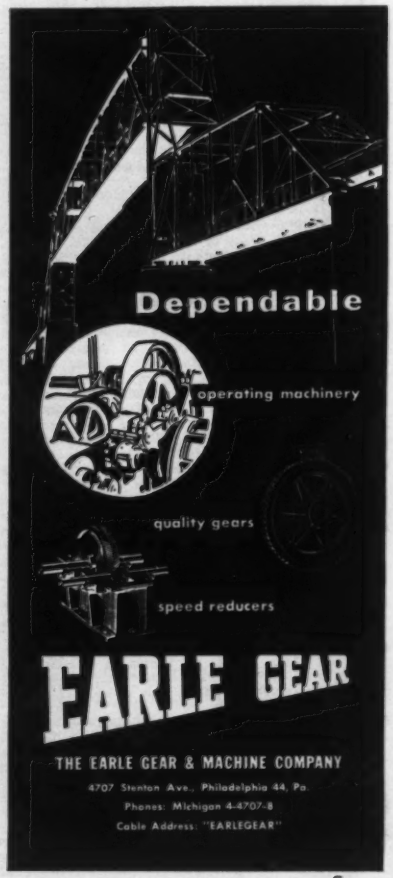

▲ N. Y., Forest Hills—APARTMENT—Nirch Leasing Corp., c/o George Miller, archt., 125 W. 45 St., New York, Zone 19, 6 story apartment, 62 Rd. northwest corner of Yellowstone Blvd., $1,000,000.

▲ N. Y., Long Beach—APARTMENT—Fetner Realty & Constr. Co., c/o S. J. Kessler & Sons, archts., 551 Fifth Ave., New York, Zone 17, 8 story apartment, (130 units), Broadway and Long Beach Blvd., $1,000,000.

N. Y., New York—APARTMENT—Joka Realty Corp., 25 Broad St., New York, Zone 4, plans by Samuel S. Adlerstein, 237 E. 20 St., Zone 3, apartment, 526-32 E. 84 St. $525,000.

▲ N. Y., New York—RESIDENCE—St. Barnabas Hospital for Chronic Diseases, 183 St. and Third Ave., hospital addn., employees' residence, $7,000,000.

▲ N. Y., New York—OFFICE—Uris Bros., 575 Madison Ave., Zone 22, plans by Emery Roth & Sons, 575 Madison Ave., Zone 22, office on west side of Third Ave. between 46 and 47 Sts., $1,000,000.

N. Y., New York—HOME—Workmen's Circle Old Age Home, Inc., 3155 Grace Ave., Zone 67, revised plans by George W. Swiller, 535 E. Tremont Ave., Zone 67, nursing home alterations at site, $725,000. (Correction-cost). CD 10/17.

OKLA., Muskogee—SANCTUARY—First Baptist Church, Muskogee, plans by Fred Zaroor, Muskogee, sanctuary. $600,000.

Pa., Munhall—SHOPPING CENTER—White & Cunningham, 131 Freeport Rd., Aspinwall, 1 story, 65,000 sq. ft. brick, block shopping center, parking area. $500,000.

▲ Pa., Pittsburgh—RESIDENCES—Baleno Bros., 6005 Verona Blvd., Verona, 470 residences Penn Twp., East View Plan addn. $7,000,000. Construction in 1956.

Tex., Abilene—OFFICE—Perry-Hunter-Hall Insurance Co., Abilene, plans by Davis S. Castle Co., 1082½ N. 1 St., 1 story, stone office, $575,000.

▲ Tex., Austin—OFFICE—E. G. Kingsbery, 3601 Bridle Path, Austin, plans by Lundgren & Maurer, 1107 W. 24 St., 21-story office, helicopeter landing strip on top of building, 12 and Lavaca Sts., $3,000,000. CD 9/21.

▲ Tex., Dallas—SHOPPING CENTER—Clayton Wyman, 5001 S. Beckley St., Dallas, Glen Oaks Shopping Center incl. 3 story department store and some smaller stores, Beckley & Ledbetter Sts., $3,500.000.

▲ Tex., Houston—OFFICE, etc.—S. N. Adams, c/o Highland Village Shopping Center, 4000 Westhiemer St., 7 story office, $1,000,000; No. 1 store $875,000; No. 2 store, $1,200,000.

▲ Tex., Houston—GEOLOGY, BIOLOGY, etc.—Rice Institute, 6100 Main St., plans by Geo. & Abel B. Pierce, 603 W. Travis St., 3-story masonry geology bldg. $750,000; 3-story masonry biology bldg. $750,000; auditorium, $500,000. CD 2/10.

Tex., Houston—OFFICE—Southern Republic Life Insurance Co., 3401 Main St., 5 story home office, 2½ acre tract, Post Oak and Richmond Rds. $750,000.

▲ Tex., Pasadena—SHOPPING CITY—The Gulf Coast Land & Development Co., Pasadena, shopping city, 83-acre tract. $3,000,000.

Tex., Victoria—CHURCH, etc.—Rob E. Lucey, archbishop, 230 Dwyer Ave., San Antonio, plans by C. A. Blomfield, 216 Grotto Blvd., San Antonio, church school and rectory, $500,000. Jean Eden Jr., Medical Center, 113 Gen. Krueger St., and Geo. R. Rhine, 209 San Pedro St., San Antonio, consult. engrs.

Utah, Salt Lake City—BANK—Walker Bank & Trust Co., Main and Second South Sts., plans by Ashton, Evans & Brazier, 24 S.W. Temple St., remodeling bank bldg. $500,000.

▲ Wis., Milwaukee—HOTEL—Design Inc., (Subsidiary of Bank Bldg. & Equipment Corp.) 906 Sidney St., St. Louis, Mo. 22 story, 110x208 ft. hotel, $10,000,000.

Wis., Milwaukee—CHURCH—Grace Evangelical & Reformed Church, c/o Steffen & Kemp, archts., 7218 W. North Ave., Wauwatosa, church, $500,000.

▲ Wis., Milwaukee—HOTEL—W. D. Isaacs, 401 W. Kilbourn Ave., plans by Wilner & Millkey 761 Peachtree St., Atlanta, Ga., 15 story hotel, $10,000,000.

▲ Que., Quebec City—CHAPEL, etc.—University of Laval, Quebec City, 1 story, bsmnt., chapel and 3, 4 and 5 story grand seminary, both rein.-con. fdn., frame, granite walls, $5,000,000. Ernest Cormier, 3675 Cote des Neiges Rd., Montreal, consult. engr.-archt. CD 1/2/48.

INDUSTRIAL BUILDINGS

▲ Ala., Aliceville—PLANT—F. C. Huyck & Sons, Third Ave., Rensselaer, N. Y., plans by Lawrence Whitten, Brown Marx Bldg., Birmingham, 200,000 sq. ft. felt and fabric plant. $3,500,000.

Ala., Mobile—PLANT—Stone Container Corp., Crichton Sta., Mobile, plant facilities expansion, incl. water clarifying unit. $500,000.

▲ Calif., Boron—PLANT ADDNS.—Pacific Coast Borax Co., 630 Shatto Pl., Los Angeles, Borax plant addns., incl. concentrator and refinery shop, warehouse and office. $18,000,000. Southern Eng. & Constr. Co., 2650 Cherry St., Long Beach, consult. engr.

Calif., Santa Ana—FACTORY—Byron Jackson Co., 2301 E. Vernon Ave., Vernon, plans by J. J. Kewell, 1344 Wilshire Blvd., Los Angeles, 1 story, 80,000 sq. ft. concrete, brick factory. $500,000.

▲ Ill., Oglesby—PLANT—Marquette Cement Mfg. Co., W. A. Wecker, pres., 20 N. Wacker Dr., Chicago,

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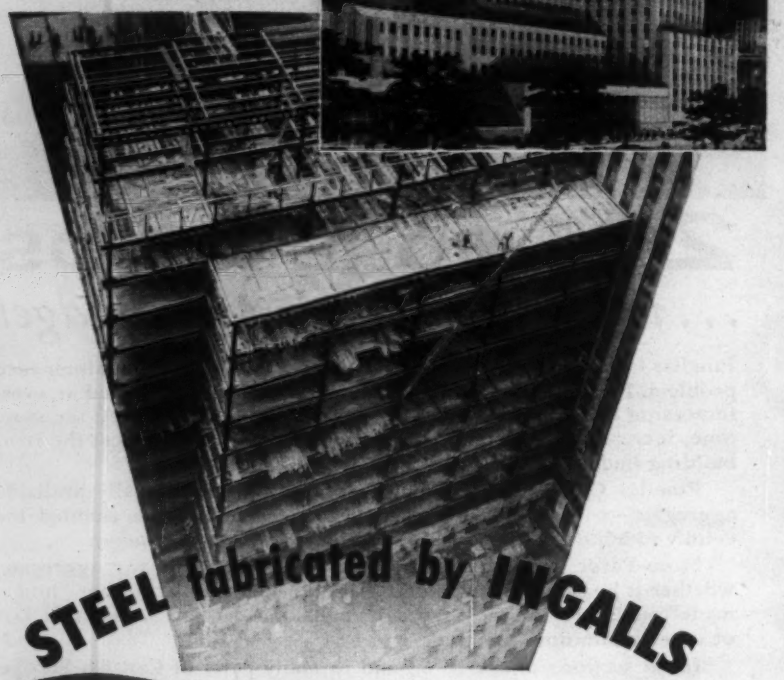

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Ill., **Rockford**—ENGINEERING—Twin Disc Clutch Co. 1328 Racine St., Racine, Wis., plans by F. J. Hoffman, 201 6 St., Racine, 1 story 28,000 sq ft. engineering bldg. $600,000.

Ind., **Hammond**—FACTORY—Keyes Fibre Co., 167 and Indianapolis Blvd., plans by Bachmam & Bertram, 5116 Hohman Ave., factory addn. $550,000.

Ind., **Warsaw**—FACTORY, etc.—Da-Lite Screen Co., Inc., 2701 N. Pulaski Rd., Chicago, Ill., 1 story, 250x340 ft. factory and office bldg. $600,000. D. H. Lessig Eng., Inc., Warsaw, consult. engr.

Mich., **Jonesville**—FACTORY—Addison Products Co., Addison, branch factory, mfg. fabricated metal panels, $500,000.

▲ Mo., **Hazelwood (St. Louis 20 P. O.)**—AUTO PARTS DEPOT—General Motors Corp., Chevrolet Motor Div., T. H. Keating, div. genl. mgr., 3044 W. Grand Blvd. Detroit, Mich., and James H. Allen, mgr., 3809 Union Blvd., St. Louis, Zone 15, 1 story, brick, steel, 330,000 sq. ft. auto parts depot and to house sales offices, on 27 acre tract at Brown Rd. and Lindbergh Blvd. $1,000,000.

N. Y., **Jamaica**—REPAIR SHOP—Long Island R. R. Co., F. Aikman Jr., ch. engr., Jamaica Station, Jamaica, plans by J. Solanski, c/o owner, 1 story, repair shop, Liberty Ave. northwest corner of 183 St., $560,000.

▲ O., **Beverly**—GENERATING UNIT—Ohio Power Co., 301 Cleveland Ave. S.W., Canton, Unit No. 4, 225,000 KW steam electric generating unit at Muskingum River Plant. $28,000,000.

▲ O., **Clyde**—MANUFACTURING FACILITIES—Whirlpool—Seeger Corp., Clyde, expansion of mfg. facilities. $1,000,000 with mechanicals. CD 2/18.

O., **Columbus**—FACTORY—M. & R. Dietetic Laboratories, Inc., 625 Cleveland Ave., 2 story 55,000 sq. ft. factory production bldg. addn., 3 story, 10,000 sq. ft. office addn., Est. $500,000.

O., **Niles**—PIPELINE TERMINAL AND BULK STATION—Standard Oil Co. of Ohio, Midland Bldg., Cleveland, Zone 15, pipeline terminal and bulk station on Rte. 422 north of here, $600,000. James Jackson, c/o owner, engr.

Okla., **Sand Springs**—PLANT—Sheffield Steel Co., Sand Springs, plant. $750,000. F. A. Westphal, c/o owner, engr. CD 10/21/53.

▲ Pa., **Meadville**—REPAIR SHOPS—Erie Railroad Co., B. Blowers, ch. engr., Midland Bldg., Cleveland 15, O., freight car repair shops, $2,000,000.

▲ Tex., **Arlington**—PLANT—South Texas Producers Assn., Inc., 77 Harvard St., Houston, milk processing plant, near here. $1,000,000.

▲ Tex., **Borger**—PLANT—J. M. Huber Corp., c/o H. W. Huber, 100 Park Ave., New York, N. Y., carbon black plant addn. $1,500,000.

Tex., **Sugarland**—PLANT—Imperial Sugar Industries, Sugarland, liquified sugar production unit. $550,000. CD 5/11/54.

▲ Wash., **Pasco**—AMMONIA PLANT—Phillips Chemical Co., Bartlesville, Okla., and Pacific Northwest Pipe Line Corp., M & M Bldg., Houston, Tex., ammonia plant. $20,000,000. Work to start next spring.

▲ Wash., **Seattle**—PLANT—Sicks' Seattle Brewing & Malting Co., 3100 Airport Way, plans by Wohleb & Wohleb, Chambers Block, Olympia, beer-packaging plant, $2,000,000. Work in 1956. CD 10/20.

▲ W. Va., **South Charleston**—PLANT—Food Machinery & Chemical Corp., 1105 Coleman St., San Jose, Calif., modernization program at Westvaco Chlor-Alkali Division Plant. $2,000,000.

▲ Alta., **Edmonton**—FACTORY, OFFICE—Western Plywood Co. Ltd., 900 East Kent St., Vancouver, B. C., plans by Rensaa & Minsos, 9130 Jasper Ave., Edmonton, factory and office, $1,000,000. CD 8/1?

Ont., **Toronto**—PLANT, etc.—Gordon Mackay & Co. Ltd., 48 Front St. W., plans by Wilson & Newton, 1104 Bay St., 1 story 125,000 sq. ft. plant and office $900,000.

▲ Que., **Baie Comeau**—PLANT—Canadian British Aluminum Co., Ltd., subsidiary of British Aluminum Co., Norfolk House, St. James Square, London SW 1, England, aluminum plant, $130,000,000.

UNCLASSIFIED

▲ Calif., **Los Angeles**—TRANSIT SHEDS, etc.—Los Angeles Harbor Dpt., City Hall, enlarging transit sheds, San Pedro, $1,220,000; piling for new Union Oil Co. wharf, San Pedro, $510,000. CD 5/24/44.

▲† Calif., **San Francisco**—STEAM TEST PLANT—Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, plans by M. C. Gould Assoc., 414 Mason St., steam test plant, San Francisco Naval Shipyard. $1,000,000.

▲† Calif., **Seal Beach**—WATERFRONT FACILITIES—Dpt. Navy, San Diego, waterfront facilities at Naval Ammunition and Net Depot, $1,029,000.

▲ Massachusetts — BEACH DEVELOPMENT — Commonwealth of Mass., Dpt. Natural Resources, Div. Forest & Parks, 15 Ashburton Pl., Boston, plans by Coletti Bros., 637 Boylston St., Boston, beach development, Horseneck Beach, Westport. $2,600,000.

▲ Okla., **Tulsa**—FAIR BUILDINGS—Tulsa Co., Court House, bond election Nov. 15, county fair bldgs. $1,300,000. J. Howard Edmonson, co. engr. CD 7/18/52.

Wis., **Milwaukee**—MONKEY HOUSE—Milwaukee County Park Comn., Court House, plans by Grassold & Johnson & assocs., 734 N. Jefferson St., Zone 2, monkey house at new zoo, $545,000. CD 1/28.

Wis., **Milwaukee** — MAUSOLEUM — Wisconsin Memorial Park, W. Capitol Dr. and N. 130 St., plans by R. A. Messmer & Bros., 231 W. Wisconsin Ave., Zone 3, stone, marble, rein.-con., steel mausoleum, $500,000.

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CONSTRUCTION REPORTS—Third Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 8 Massachusetts

HEAVY CONSTRUCTION—LB & CA

▲ **Wexler Constr. Co.,** 118 Needham St., Newton Highlands, Mass., LB **$1,164,000,** est. $1,100,000, Contr. 228, combination service station, snack bars and restaurants on 4 locations, Maine Turnpike, MAINE. Maine Turnpike Auth., 17 Bishop St., Portland, Me. Lorimer & Rose, 254 W. 54 St., New York, N. Y., archts. Bids Oct. 20, CD 10/4;
Samuel Aceto & Co., 40 Preble St., Portland, Me., LB **$587,100,** est. $590,000, Contr. 228A, service station, snack bar and restaurant, Mile 56 and 57 Maine Turnpike; LB **$593,200,** est. $690,000, Contr. 228B, service station, snack bars and restaurants, Mile 81 and 85, Maine Turnpike; LB **$347,900;** est. $350,000. Contr. 228C, service station, snack bar and restaurant, Mile 81, Maine Turnpike; LB **$245,000,** est. $250,000. service station, snack bar and restaurant, Mile 95, Maine Turnpike (MTA).

BUILDINGS—LB & CA

▲ **O. D. Purington Co., Inc.,** 171 Westminster St., Providence, R. I., CA **$1,019,000.** HOSPITAL, West Chester St., Mass 66 (G) NANTUCKET, MASS. Nantucket Cottage Hospital, 21 W. Chester St., Nantucket, Mass. McCarron & Sullivan, Inc., 45 Newbury St., Boston, Mass., consult. engrs. CD 8/26, under LB.

Wigton-Abbott Corp., 1225 South Ave., Plainfield, N. J., CA Approx. **$800,000.** design and construct MFG. PLANT, Indian Orchard, SPRINGFIELD, MASS. Shawinigan Resins Corp., 644 Monsanto Ave., Indian Orchard, Mass.

Ridgefield Gardens Homes, c/o Gustave Iser, archt., 95 Madison Ave., New York 16, N. Y. Owner Builds, **$850,000.** 40 HOUSES, RIDGEFIELD, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 18 Pennsylvania
STREETS AND ROADS
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BUILDINGS—BA

▲ **Pa., Fallsington**—SCHOOL—BA 11/10—Pennsbury Joint School Bldg. Auth., Fallsington, Boehm Junior High School **$1,800,000.** Micklewright & Mountford, 72 Ewing St., Trenton, N. J., archts. CD 4/2/54.

Del., Dover—DORMITORY—BA 11/16—Delaware State College, Dover, men's dormitory, $650,000. W. Ellis Preston, 903 Jefferson St., Wilmington, archt. CD 8/19.

BUILDINGS—SLC

▲ **N. J., Atlantic City**—MOTEL, etc.—J. Vaughn Mathis, archt., Guarantee Trust Bldg., soon lets contract, motel, swimming pool and restaurant, for 3400 Broadwalk Corp., 3542 Atlantic Ave., Atlantic City, N. J., $1,000,000. George R. Swinton, City Hall, city engr. CD 9/15.

HEAVY CONSTRUCTION—LB & CA

▲ **Johnson, Drake & Piper Corp., Grafe-Callahan Constr. Co., Tecon Corp., Winston Bros. Co., Conduit & Foundation Corp.,** 86 Trinity Pl., New York, N. Y., LB **$16,700,805** Contr. 451; LB **$21,200,100,** Contr. 252; LB **$35,719,589** combination; for westerly portion of West Delaware tunnel of Delaware System, Contr. 451, 43,100 lin. ft. tunnel, incl. intake channel and Shaft 1, approx. 520 ft. deep, towns of Tompkins and Hancock, Delaware Co.; Contr. 452, 60,000 lin. ft. tunnel, incl. Shaft 2, approx. 310 ft. and Shaft 3, approx. 460 ft. deep in towns of Hancock and Colchester, Delaware Co., NEW YORK. Bd. Water Supply, 120 Wall St., New York 5, N. Y. Bids Oct. 25. CD 10/10.

▲ **H. Sand & Co.,** 11 Park Pl., New York 7, N. Y. LB **$1,267,000** (3 bidders) furnish, install piping and misc. equip. for 74 Street Power Plant, New York City Transit System, Manhattan Boro, Co nor. P-144, NEW YORK, New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Oct. 21. CD 10/6.

Fred Lundgren, R.D. 5, Kittanning, Pa. LB **$930,900.** 2 story, brick, steel Junior-Senior High SCHOOL, BROCKWAY, PA. Brockway Washington Snyder Joint School Dist., Brockway, Pa. Bids Oct. 20. CD 9/28.

▲ **Poiselli & Angelucci,** 621 N. 54 St., Phila., Pa., LB **$101,430,** paving, Bid 3605, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. CD 10/30/44.
General Asphalt Paving Co. 6851 Rising Sun Ave., Phila., Pa., LB **$1,436,302,** grading, paving, Henry Ave., Bid 3616 (Phila. Pa.);
Glasgow Inc., Glenside, Pa., LB **$150,446,** paving, Bid 3628 (Phila. Pa.).

▲† **C. J. Langenfelder & Son, Inc.,** 8427 Pulaski Hy., Baltimore, Md., CA **$3,809,957,** runways, taxiways and aprons imprvs., Naval Air Station PATUXENT RIVER, MD. Dist. P. Wks. Office, Potomac Naval Command, Naval Gun Factory, Wash., D. C. Bids Oct. 5. CD 10/10, under LB.

▲† **Fontana Constr. Co.,** 112 A St., Wilmington, Del., LB, **$1,192,078,** 100-unit housing, New Castle Air Force Base, ENG-07604-56-9, NEW CASTLE, DEL. Procurement Office, 82nd Fighter Group (Air Defense) New Castle County Airport, Wilmington, Del. Bids Oct. 19.

BUILDINGS—LB & CA

▲† **White Constr. Co.,** 95 Madison Ave., New York 16, N. Y., CA **$1,071,000,** aluminum walled SERVICE AND CONTROL CENTER for synchroton proj. Brookhaven National Laboratories, BROOKHAVEN, N. Y. Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash. 25, D. C. Stone & Webster Engr. Corp., 90 Broad St., New York 4, N. Y., engrs. CD 1/13/54.

▲ **H. R. H. Constr. Corp.,** 16 W. 46 St., New York, N. Y. CA **$5,554,000** foundation work and general constr. Carver HOUSES, Sect. II Bldgs. Nos. 7 to 13 and 1 story exten. for CHILDRENS CENTER, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Aug. 23. CD 8/25, under LB;
Paramount Plumbing & Heating Co., 336 E. 92 St., New York, N. Y., CA **$619,000,** plumbing (NYCHA).

▲ **Costanza Contg. Co.,** 6515 Crescent Blvd., Pennsauken, N. J., LB, **$1,204,900** general contract JUNIOR HIGH SCHOOL, 7 St. and Erie Ave., CAMDEN, N. J. Bd. of Educ. City Hall, Camden, N. J. Bids Oct. 13. CD 9/27.

Alexander Lichine, 111 Forest Ave, Lakewood, N. J. Separate Contracts, **$780,000.** RESIDENTIAL DEVELOPMENT, Prospect St., LAKEWOOD, N. J. G. Phillips, Toms River, N. J., archt.

▲ **Turner Constr. Co.,** 1500 Walnut St., Phila., Pa., CA, **$1,500,000.** Robert Speer Memorial LIBRARY, PRINCETON, N. J. Princeton Theological Seminary, Mercer St., Princeton, N. J. CD 9/14.

▲ **Raleigh Homes, Inc., Att. Minskoff Constr. Co.,** Toms River, N. J., Separate Contracts, **$1,000,000.** RESIDENTAL DEVELOPMENT Hughes Aves., TOMS RIVER, N. J. Silberstein & Silberstein, 24 William St., Newark, N. J., archts.

▲ **Sol G. Atlas,** 10 Grave Ave., Great Neck, N. Y., CA, **$3,000,000.** SHOPPING CENTER 190-acre tract, WEST ORANGE, N. J. Orange Center, Inc., c/o contractor, Lathrop Douglass, 518 Fifth Ave., New York 18, N. Y., archt.

Seltzer & Young, Inc., 1316 Moravia St., New Castle, Pa., LB **$757,072,** general constr. SECONDARY SCHOOL BLDG. for Northwestern Beaver County Joint School Bd., Darlington Twp., DARLINGTON, PA. State P. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Oct. 20. CD 9/29.

Ralph B. Whitley, 224 Long Lane, Upper Darby, Pa. Separate Contracts. **$800,000.** RESIDENTIAL DEVELOPMENT, Woodridge Dr., etc., MEDIA, PA.

▲ **Clearbrook Homes, Inc.,** 55 N. 52 St., Phila., Pa. Separate Contracts. **$2,000,000.** RESIDENTIAL DEVELOPMENT, McKean St., etc., PHILA., PA.

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa. CA **$4,500,000.** SHOP and OFFICE, PHILA., PA. Phila. Transportation Co., 820 W. Dauphin St., Phila., Pa. Bids Oct. 7. CD 10/6.

Millwood Corp., c/o T. V. Williams, Box 331, Fort Washington, Pa., Separate Contracts. **$605,000.** 55 RESIDENCES, Alicia St. PHILA., PA. William L. Winchell, 212 Rock Glen Rd., Phila., Pa., archt.

▲ **Crown Builders, Inc.,** 11 and Hamilton Sts. N.E. Wash., D. C., Owner Builds, **$1,300,000.** 100 brick-detached HOMES, adjacent to Twinbrook, ROCKVILLE, MD.

▲ **Highlands, Inc.,** 1914 Connecticut Ave. N. W., Wash., D. C. Owner Builds. **$1,000,000.** restoration and remodernization of BUILDING, 1914 Connecticut Ave. N.W., WASH. D. C. Daumit & Sargent, 145 Kennedy St. N. W., Wash., D. C, archts.

Elberon Village, Inc., 258 Norgrove Ave., Elberon, N. J., Separate Contracts, **$650,000,** (49) RESIDENTIAL DEVELOPMENT, DOVER, DEL. Erwin Gerber, 11 Commerce St., Newark, N. J., archt.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 16 Louisiana
STREETS AND ROADS
November 16 Louisiana

▲† **S. C., Beaufort**—BARRACKS, etc.—BA 11/23— P. Wks. Officer, Sixth Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, eight 3 story, 30x200 ft concrete, masonry barracks; 1 story, 120x261 ft. concrete, masonry subsistence bldg. U. S. Marine Corps Auxiliary Landing Field, NOY 91176, Spec. 49111. Plans deposit $50. CD 6/30.

HEAVY CONSTRUCTION—LB & CA

FLORIDA—Florida State Turnpike Auth., 715 N. Federal Hy., P.O. Box 218, Dania,
Union Bldg. & Constr. Corp. and Central Florida Constr. Co., 1911 S. Olive St., West Palm Beach, Fla., CA, **$530,169** grading, drainage, fencing 6.7 mi. turnpike in Palm Beach Co. Bids Sept. 1, awarded Oct. 6. CD 9/6, under LB.

▲ **FLORIDA**—Florida State Turnpike Auth., 715 N. Federal Hy., Dania,
FSTA—Ralph E. Mills Co., 410 Ann St., Frankfort, Ky., LB, **$747,423** (6 bidders) grading, draining 6 mi. northeasterly from State Rd. 7, approx ½ mi. north of Prospect Rd. to west end of Sample Rd., Broward Co.;
FSTA—H. E. Wolf Constr. Co., St. Augustine, Fla., LB, **$682,172** (10 bidders) grading, draining, fencing 5 mi. extending from near Griffin Rd. (SR 818) to point near Plantation Rd., Broward Co. Bids Oct. 20. CD 10/14.

▲ **FLORIDA**—Florida State Turnpike Auth., 715 N. Federal Hy., Dania,
FSTA—Cleary Bros. Constr. Co., Comeau Bldg., West Palm Beach, Fla., LB, **$638,425** (concrete) 7 bridges, Palm Beach and Martin Counties;
FSTA—Mt. Vernon Bridge Co., Mt. Vernon, O., LB, **$1,379,487,** (3 bidders) superstructure St. Lucie Canal Bridge. Bids Oct. 20. CD 10/14.

▲† **Southern Constr. Corp.,** Daniel Field, Augusta, Ga., CA, **$1,105,670.** 5 dormitories, Air University, MAXWELL AIR FORCE BASE, Ala. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Oct. 13. CD 10/25, under LB.

BUILDINGS—LB & CA

Wm. Harley Miller, Martinsburg, W. Va., LB, **$559,584,** 3 story, concrete, brick, steel men's DORMITORY, BUCKHANNON, W. VA. West Virginia Wesleyan College, Buckhannon, W. Va. Bids Oct. 18. CD 9/28.

▲ **Georgia State School Bldg. Auth.,** 41 Exchange Pl. S. E., Atlanta, Ga., rejected bids Sept. 22, South Gwinnett HIGH SCHOOL, Snellville Elementary SCHOOL addn., remodeling; Central Gwinnett HIGH SCHOOL, Renwick-Hooper HIGH SCHOOL and Caula Elementary and Liburn Elementary SCHOOL addns., LAWRENCEVILLE, GA. LB **$1,121,658.** CD 9/28, under LB.

▲ **The Girdler Co.,** 224 E. Broadway, Louisville, Ky., CA, **$14,000,000.** syntheic nitrogen PLANT, SAVANNAH, GA. Southern Nitrogen Co., Inc., Savannah, Ga. CD 9/19.

Pearce & Gresham Co., Decatur, Ala., LB, **$807,788** (2 bidders) HOSPITAL WING Addn., HUNTSVILLE, ALA. Huntsville Hospital, Inc., Huntsville, Ala. CD 8/10, under LB.

▲ **Westinghouse Electric Corp.,** P.O. Box 868, Pittsburgh 30, Pa., LB **$16,279,500,** est. $15,000,000. turbines for $100,000,000 STEAM PLANT, MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Bids Oct. 20. CD 10/12.

▲ **J. B. Michael & Co.,** 407 40th Ave. N., Nashville, Tenn., CA, **$2,160,886** grading, drainage, paving, install utility lines, street lighting, traffic controls and landscaping of Nashville Capitol Hill Redevelopment Proj., 72-acres, HOUSING UTILITIES, NASHVILLE, TENN. Nashville Housing Auth., S. 6 St., Nashville, Tenn. Bids Oct. 18, awarded Oct. 26. CD 9/26.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 8, 9 Michigan
November 8, 9 Michigan November 16 Ohio

▲ **O., Cincinnati**—BA 11/15—City, City Hall, pumping station and connecting sewers for Millcreek Sewage Plant, Station at River Rd. and Elhi Ave. Plans deposit $25. Havens & Emerson, Leader Bldg., Zone 14, engrs. CD 4/1.

BUILDINGS—BA

▲ **Mich., East Lansing**—HEALTH CENTER—BA 11/15—State, A. N. Langlus, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, health center, Michigan State University, $2,000,000. Ralph Calder, 1212 Kales Bldg., Detroit, archt. CD 7/5.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy Dpt., Columbus, Zone 15,
O.—W. J. Seidensticker Co., 3585 E. Fulton St., Columbus, O., CA **$858,498,** est. $884,200, Type T-35 on B-20 and structure, 1.978 mi. City of Upper Arlington, City of Columbus, Clinton Twp. C. R. No. 59, Sects. C and D, S-100 (1), Franklin Co.;
O.—S. E. Johnson Co., P.O. Box 29, Maumee, O., CA $559,750, est. $569,700, Type T-35 and structures, Montgomery and Freedom Twps., Madison, Scott, Washington, Jackson Twps., Village of Helena, U. S. R. 6, Sects. (0.00-6.26), Sandusky and Wood Counties. Bids Oct. 11. CD 10/20 under LB.

West Penn Pipe Lines Constr. Co., Irwin, Pa., CA **$600,000.** county-owned water sys. to service Brookfield Twp., WARREN, O. Bd. Comrs. Trumbull Co., Court House, Warren, O. Awarded Oct. 12. CD 6/29, under LB.

Cassidy Constr. Co., 228 N. La Salle St., Chicago 1, Ill., LB, **$500,950** (3 bidders) water sys. addns., incl. two 500,000 gal. water tanks, VILLA PARK, ILL. Village, Village Hall, Villa Park, Ill. Walter Wilson, 105 W. Madison St., Chicago, Ill., engr.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Mich.—Hertel-Deyo Co., 5205 Division St., Grand Rapids, Mich., LB **$128,314,** est. $150,000 (13 bidders) stabil., aggregate surf., curb and gutter, prime and

(Continued on page 84)

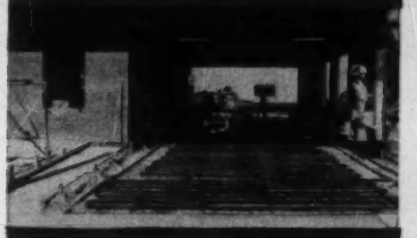
In a variety of Winter Traffic "Trouble Spots"...

HIGHWAY RAMPS

STEEP HILLS

TOLL HOUSE APPROACHES

ACCESS ROADS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CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY STEEL PRODUCTS

Baltimore, Md., CA $3,809,957, runways, taxiways and aprons imprvs., Naval Air Station PATUXENT

Co., 1911 S. Olive St., West Palm Beach, Fla., CA, $530,169 grading, drainage, fencing 6.7 mi. turnpike

stabil., aggregate surf., curb and gutter, prime and

(Continued on page 84)

(Continued from page 82)

double seal on M-43 and M-50, SS 8-47 C5-U (S 7604) F 34-37, C11-U F 34-37 C 12-R (F 252 10), Barry and Ionia Counties;

Mich.—**Cross & White,** 3849 Three Mile Rd. N.E., Grand Rapids, Mich., LB **$671,087,** est. $700,000 (19 bidders) grading, drainage, structures and dual hy., 5.439 mi. US 16 relocation, IN 63-29 C8-RO (IN 430 1), Oakland Co.; LB $121,553, est. $120,000 (7 bidders) grading, drainage and 40 ft. concrete 8 in. uniform pavement 0.483 mi. M-25 from Sebewaing St. to Pine St., F 32-18 (C3-U) (F 135 13), Huron Co. Bids Oct. 19. CD 10/12.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**L. A. Davidson,** 213 E. St. Joseph St., Lansing, Mich., LB **$1,149,785,** est. $1,030,000 (8 bidders) bridge and approach on M-39 over gate 10 access drive, F BI of 82-22-51, C1-U F 82-121 C1-U (F 429 1 and 2), Dearborn, Wayne Co.;

Mich.—**Louis Garavaglia,** 24240 Mound Rd., Center Line, Mich., LB **$282,739,** est. $300,000 (10 bidders) bridge, McClellan Ave., over Edsel Ford Expressway, Detroit, UI B68 of 82-22-10 C1-UO (UI 391 84), Wayne Co.;

Mich.—**W. H. Harvie, Inc.,** Tilman and Kirby Sts., Detroit, Mich., LB **$186,088,** est. $200,000 (18 bidders) concrete, steel bridge on 10-Mile Rd. over relocation of US-16, Farmington, IN BI of 35-6-4 C1-RO (IN 430 2), Oakland Co.;

Mich.—**Johnson-Greene Co.,** 416 E. Huron St., Ann Arbor, Mich., LB **$106,150,** est. $110,000 (12 bidders) remove bridge and constr. bridge over Pine River on M-171, Mikado, SS B1 of 1-9-1 C4-R (S 7 4), Alcona Co.; LB **$161,331,** est. $180,000 (18 bidders) rein.-con., steel bridge, Novi Rd. over relocation of U.S. 16, at Novi, IN B2 of 63-13-4 C1-RO (IN 430 5), Oakland Co. Bids Oct. 19. CD 10/5.

BUILDINGS—LB & CA

▲ **Morlee Builders,** 23007 Fairmount Blvd., Beechwood, O. Own Forces. **$1,530,000.** 51 ranch HOMES in Fairmount Park Estates, east of Green Rd., BEACHWOOD, O. Irving Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. Awarded Oct. 21.

▲ **Morlee Builders,** 23007 Fairmount Blvd., Beachwood, O. Own Forces. **$1,938,000.** one hundred and two 1½ story BUNGALOWS, on 30 acre site, off Northfield Rd. south of Columbia Rd., BEDFORD, O. Irving Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. Awarded Oct. 21.

▲ **Bruscino Constr. Co.,** 17309 Madison St., Cleveland, O. Own Forces. **$6,400,000.** 400 HOMES on 100 acre site between Barrett Rd. and Center St., BEREA, O. CD 2/21.

▲ **Morlee Builders,** 23007 Fairmount Blvd., Beechwood, O. Own Forces. **$3,302,000.** 127 ranch HOMES on 30 acre tract north of Wilson Mills Rd. east of Richmond, HIGHLAND HEIGHTS, O. Irving Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. awarded Oct. 21.

▲ **Morlee Builders,** 23007 Fairmount Blvd., Beachwood, O. Own Forces. **$2,288,000.** 88 ranch HOUSES on 25 acre site on south side of Richmond Rd., LYNDHURST, O. Irving Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. Awarded Oct. 21.

Ferrell Constr. Co., 716 Figueroa Pl. S. E., Canton, O. LB **$511,897** (4 bidders) general constr., Franklin SCHOOL, MASSILLON, O. Bd. Educ., Massillon, O. Bids Oct. 19. CD 9/20.

▲ **Morlee Builders,** 23007 Fairmount Blvd., Beachwood, O. Own Forces. **$1,600,000.** one hundred 1½ story BUNGALOWS, on 2 sites, one Rush Rd. south of Euclid and other on Homewood Dr. off Lloyd Rd., WICKLIFFE, O. Irging Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. Awarded Oct. 21.

Morlee Builders, 23007 Fairmount Blvd., Beachwood, O. Own Forces. **$825,000.** fifty 1½ story HOMES, on 30 acre site fronting on Vine St. north of Lake Shore Blvd., WILLOUGHBY, O. Irving Levin, 1608 Woodrow Ave., Cleveland 24, O., archt. Awarded Oct. 21.

▲ **The Lusk Corp.,** c/o Chamber of Commerce, Kokomo, Ind., Owner Builds, **$1,000,000.** 120 HOMES in new addn. in Taylor Twp., KOKOMO, IND.

Schiess Constr. Co., 703 Rogers St., Downer Grove, Ill., CA, **$600,000.** CHURCH, SCHOOL and PARISH HOUSE, DOWNERS GROVE, ILL. St Andrews Episcopal Church, 4832 Forest Ave., Downers Grove, Ill. Fugard, Burt, Wilkinson & Orth, 520 N. Michigan St., Chicago, Zone 11, archts. Awarded Oct. 20.

▲ **Coath & Goss, Inc.,** 5103 W. Lake St., Chicago, Ill., CA, **$1,165,000.** MUNICIPAL BLDG., GLENCOE, ILL. Village, Village Hall, Glencoe, Ill. Awarded Oct. 20. CD 10/13, under LB.

Original Home Builders, 6253 Milwaukee Ave., Chicago, Ill. Own Forces, **$500,000.** 25 HOMES, NILES, ILL. B. J. Burns, 4734 N. Hermitage St., Chicago, Ill., archt.

Jezo Constr. Co., 1909 S. 74 St., West Allis, Wis., LB **$746,708,** general contract War Memorial CIVIC CENTER, WAUWATOSA, WIS. City, 7616 Harwood Ave., Wauwatosa, Wis. Bids Oct. 20. CD 9/14.

▲ **William B. Gibson,** 5041 N. High St., Columbus, O. CA Est. **$35,000,000.** Mich. Miracle Mile Town and Country Shoppers City SHOPPING CENTER, 150 acre site, Telegraph and Square Lake Rds. Pontiac By-Pass, BLOOMFIELD, MICH. Don M. Casto Organization, 4250 Fourth St., Columbus, O. C. Melvin King, c/o owner, archt.

John C. Westphal, 12274 Coyle St., Detroit, Mich. CA **$928,480.** general contract. JUNIOR HIGH ,SCHOOL, HARPER WOODS, MICH. City, Marie T. Baron, clk., Harper Woods, Mich. Bids Sept. 27. CD 9/15.

Elzinga & Volkers, Inc., Holland, Mich. CA **$916,790.** DORMITORY, HOLLAND, MICH. Hope College, Randall C. Bosch, secy., Bd. Trustees, Holland, Mich. CD 10/6, under LB.

▲ **Miller-Davis Co.,** 1029 Portage St., Kalamazoo, Mich. CA **$1,101,000.** DEPARTMENT STORE, KALAMAZOO, MICH. Sears Roebuck & Co., Kalamazoo, Mich. Bids Sept. 15. CD 9/2.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 23 Texas
STREETS AND ROADS
November 22, 23 Texas

BUILDINGS—BA

Minn., Biwabik—SCHOOL—BA 11/10—Bd. Educ., Sarah Anzelc, clk., general and electrical contracts, elementary school, $550,000. Jyring & Whiteman, Hibbing, archts. CD 10/21, under LB.

Kan., Wichita—BANK—BA 11/15—Fourth National Bank, Douglas Ave. and Market St., bank addn., Market St. $600,000. Extended date. Thomas, Harris & Calvin & Assocs. 321 W. 2 St., archts. CD 10/4.

▲ **N. M., Albuquerque**—GYMNASIUM—BA 11/16—University of New Mexico, c/o Bd. Regents, Albuquerque, 222x337 ft. gymnasium, 2,000 auto parking, 8,200 person seating, 2,000 locker spaces and swimming pool, $1,650,000. Meem, Zehner, Holien & Assocs., Box 628, Santa Fe, archts CD 9/30.

Mo., Columbia—SCHOOL—BA 11/22—Bd. Educ., Neil C. Aslin, supt. Schools, constr. Jefferson Junior High School addn. $500,000. Marshall & Brown, 1016 Baltimore Ave., Kansas City, Mo., archts. CD 7/27.

▲ **Tex., Houston**—HOSPITAL—BA 11/22—M. D. Anderson Foundation & Hermann Hospital Estate, 1st Natl. Bank Bldg., 15 story hospital unit appurtenances. $2,750,000. Kenneth Franzheim & John Freeman, Jr., Assocs., 4926 Travis St., archts. B. Johnson & Assocs. 4926 Travis St., and Ward Butterwick, 2303 La-Branch St., engrs. CD 11/12/54.

HEAVY CONSTRUCTION—LB & CA

† **Purch. & Contg. Office,** Sioux City Air Force Base, Sioux City, Iowa, rejected bids Sept. 22, family housing units, Sioux City Air Force Base, SIOUX CITY, IOWA. LB **$713,545.** CD 10/13, under LB.

J. A. Tobin Constr. Co., 3701 Rainbow Blvd., Kansas City, Kan., CA, **$738,089.** Rock Creek and Hillside Levee Bond sanitary sewers, NORTH KANSAS CITY, MO. Dpt. P. Wks., City Hall, Kansas City, Mo. Bids Oct. 7.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**Austin Asphalt Co. & Uvalde Constr. Co.,** P. O. Box 1590, Dallas, Tex., LB **$76,127,** hot mix b. conc. 13.588 mi. SH 342, 289, US 75, 175, Sp. 244 and 1p 12 Proj., Dallas Co.;

Tex.—**Brown & Root, Inc.,** P. O. Box 3, Houston, Tex., LB **$159,157,** grading, structures, base, surf. 4.626 mi. Hy. FM 2227, US 80 and ST 51, Proj. S 2032 (1), etc. Ector Co.;

Tex.—**Bryan & Hoffman,** P. O. Box 390, Plainview, Tex., LB **$99,218,** grading, structures, base, surf. 16.261 mi. Hy. FM 2130, Proj. S 2026 (1), etc. Hockley Co.; LB **$198,279,** grading, structures, base, surf. 22.26 mi. Hy. FM 1264, 1294 and 597, Proj. S 1950 (1), etc. Lubbock Co.;

Tex.—**Cage Bros.,** 6959 San Pedro St., San Antonio, Tex. LB **$567,365,** flexible base, hot mix b. conc. 2.801 mi. Hy. Loop 13, Proj. UI 1075 (3), Bexar Co.;

Tex.—**W. S. Crawford Co. & R. N. Adams,** 5350 Montrose Dr., Dallas, Tex., LB **$371,095,** grading, structures and grade separation 2.676 mi. Hy. US 80, Proj. IN 526 (13), Kaufman Co.;

Tex.—**E. B. Darby & Co., Inc.,** P. O. Box 467, Pharr, Tex. LB **$81,491,** grading, structures, base, surf. 7.361 mi. Hy. FM 2061, Proj. S 1965 (1), etc., Hidalgo Co.;

Tex.—**E. E. Hood & Sons,** Box 6097, Harlandale Station, San Antonio, Tex., LB **$354,454,** flexible base, b. conc. 13.536 mi. Hy. US 83. Proj. F 727 (10), Zavala Co.; LB **$208,901,** flexible base, two course surf. tr. 7.408 mi. Hy. FM 689, Proj. R 421-7-1, Bandera Co.;

Tex.—**Allen Keller Co.,** P. O. Box 393, Fredericksburg, Tex., LB **$92,673,** grading, structures, base and surf. 6.473 mi. Hy. FM 1962, Proj. S 2148 (1), Sutton Co.;

Tex.—**Loyd Electric Co., Inc.,** 511 El Paso St., San Antonio, Tex., LB **$103,213,** street illumination sys. 3.566 mi. Hy. US 81, Proj. C 15-13-18, Travis Co.;

Tex.—**R. W. McKinney,** P. O. Box 190, Nacogdoches, Tex., LB **$183,459,** grading, structures, base, surf. 6.001 mi. Hy. FM 902, Proj. R 51-1-5, Grayson Co.;

Tex.—**Holland Page,** P. O. Box 1181, Austin, Tex., LB **$398,320,** flexible base, two course surf. tr. 13.964 mi. Hy. SH 87, Proj. C 367-3&4-11&15, Galveston Co.;

Tex.—**Reynolds & Huff,** P. O. Box 88, Tyler, Tex., LB **$243,213,** flexible base, b. conc. 10.793 mi. Hy. US 69, Proj. F 105 (3), etc., wood and Smith Counties.;

Tex.—**Dean Skinner, Contr.,** P. O. Box 4057, Austin, Tex. LB **$148,795,** grading, structures, base, surf. 8.227 mi. Hy. FM 413 and 1888, Proj. S 1906 (1), etc., Falls Co.;

Tex.—**H. B. Zachry Co.,** P. O. Box 10188, San Antonio, Tex. LB **$90,105,** grading, structures, base, surf. 8.521 mi. Hy. FM 99, Proj. S 1282 (1), McMullen Co. Bids Oct. 19. CD 9/29, 10/4, 9/28.

TEXAS—State Hy. Comn., Austin,

Dean Skinner, Contractor, P.O. Box 4057, Austin, Tex. LB **$119,895,** 0.144 mi. Aransas River Bridge, Hy. US 77, Proj. F 1100 (2), Refugio and San Patricio Counties. Bids Oct. 19. CD 9/28.

TEXAS—State Hy. Comn., Austin,

Cage Bros., 6959 San Pedro St., San Antonio, Tex., CA **$567,365.** flexible base, hot mix b. conc. 2.801 mi. Hy. Loop 13, Proj. UI 1075 (3), Bexar Co. Bids Oct. 19, awarded Oct. 24. CD 10/26, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**Cooper & Woodruff, Inc.,** 204 Mays Bldg., Amarillo, Tex., CA **$505,889,** flexible base, two course surf. tr. 12.537 mi. Hy. SH 67, Proj. S 2070 (1), Young and Stephens Counties;

Tex.—**Fred Hall & Son and J. B. Clardy Constr. Co.,** Valley Mills, Tex., CA **$776,863.** c. conc. pavement, flexible base, one and two course surf. tr. 2.153 mi. Hy. ST 174 and US 81, Proj. F 20 (9), etc., Johnson and Tarrant Counties;

Tex.—**R. W. McKinney & Uvalde Constr. Co.,** P.O. Box 190, Nacogdoches, Tex., CA **$579,047,** grading, lengthen, structures, flexible base, b. conc. 19.617 mi. Hy. SH 19 and 64, Proj. S 204 (10), etc., Van Zandt Co. Grand total $1,861,799. Bids Oct. 18, awarded Oct. 24. CD 10/24, under LB.

▲ **TEXAS**—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,

C. F. Lytle Co., P.O. Box 206, Sioux City, Iowa, CA **$1,568,697,** grading, drainage 3.182 mi. from Meyers Rd., Chalk Hill Rd., Proj. D-FW 25, Dallas Co. Bids Oct. 18, awarded Oct. 24. CD 10/25, under LB.

BUILDINGS—LB & CA

▲ **H. K. Ferguson Co. and Cooper & Wyoming,** Enquirer Bldg., Cincinnati, O., CA Total est. **$1,000,000** general contract, drug products PLANT, IOWA CITY, IOWA. Procter & Gamber Mfg. Co., Gwynne Bldg., Cincinnati, O. Bids Sept. 28. CD 9/22;
International Steel Co., 321 Edgar St., Evansville, Ind., CA, steel work (Iowa City, Iowa).

▲ **Davey & Moen, Inc.,** 604 Brick & Tile Bldg., Mason City, Iowa, CA, total est. **$1,650,000,** general contract, 61x134 ft., 20x34 ft. TELEPHONE BLDG. addns., MASON CITY, IOWA. Northwestern Bell Telephone Co., Mason City, Iowa.

▲ **Geo. Sheaf & Co.,** 20 W. 9 St., Kansas City, Mo. CA, **$1,997,650.** Contr. No. 17, POWER STATION structures, SPRINGFIELD, MO. City, Utilities Bd. E. W. Belt, purch. agt., 301 E. Central St., Springfield, Mo. Bids Oct. 16, awarded Oct. 20. CD 10/18, under LB.

Thomas S. Byrne, Inc., 1607 Fort Worth Natl. Bank Bldg., Fort Worth, Tex., CA **$875,000,** 116,000 sq. ft. MFG. PLANT, loading docks, railway tracks, etc., ARLINGTON, TEX. American Can Co., Lockwood and Clinton Dr., Houston, Tex., 100 Park Ave., New York, N. Y. Bids Aug. 2. CD 7/19 under CA.

▲ **Farnsworth & Chambers Co., Inc.,** Box 74, Houston, Tex. CA **$1,838,979,** HOSPITAL, BEAUMONT, TEX. Baptist Hospital of Southwest Texas, c/o Bd. Trustees, Beaumont, Tex. Bids Sept. 8. CD 9/14, under LB.

▲ **Fuller Constr. Co.,** 1616 Elm St., Dallas, Tex., CA Approx. **$1,000,000.** 6 story STORE addn., DALLAS, TEX. W. A. Green Co., 1616 Elm St., Dallas, Tex. CD 10/21.

O'Rourke Constr. Co., Box 5384, Dallas 2, Tex. LB **$543,900,** men's DORMITORY, DALLAS, TEX. Southern Methodist University, Dallas, Tex. Bids Oct. 17. CD 10/5.

Spartan Constr. Co., Box 14397, Houston, Tex., CA **$612,085,** JUNIOR HIGH SCHOOL to serve Home Owned Estates and Cloverlief, GALENA PARK, TEX. Galena Park Independent School Dist., Galena Park, Tex. Bids Oct. 10. CD 10/19, under LB.

J. A. Nesbit, Nacogdoches, Tex., CA **$513,410,** LIBRARY, NACOGDOCHES, TEX. Stephen F. Austin College, c/o State Bd. Regents, Nacogdoches, Tex. Bids Sept. 27. CD 10/5, under LB.

▲ **N. G. Petry Constr. Co.,** 1114 W. 7 Ave., Denver, Colo., CA, **$1,495,000,** est. $1,000,000. 170x180 ft. AUDITORIUM, 210x320 ft. CLASSROOM and RECREATIONAL WING, DENVER, COLO. Temple Emanuel, E. 16 Ave. and Pearl St., Denver, Colo. Bids Sept. 30. CD 9/16.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Utah, Provo**—BA 11/15—Provo River Water Users Assn., Fisher Harris, mgr., 8 W. Center St., power plant, Deer Creek Reservoir, $1,000,000. CD 5/5.

Calif., Los Angeles—BA 11/15—Los Angeles Co., Hall of Records, bridge and channel work, Glendora Ave. and Puente Creek, Puente, $100,000. H. E. Hedger, c/o owner, engr.

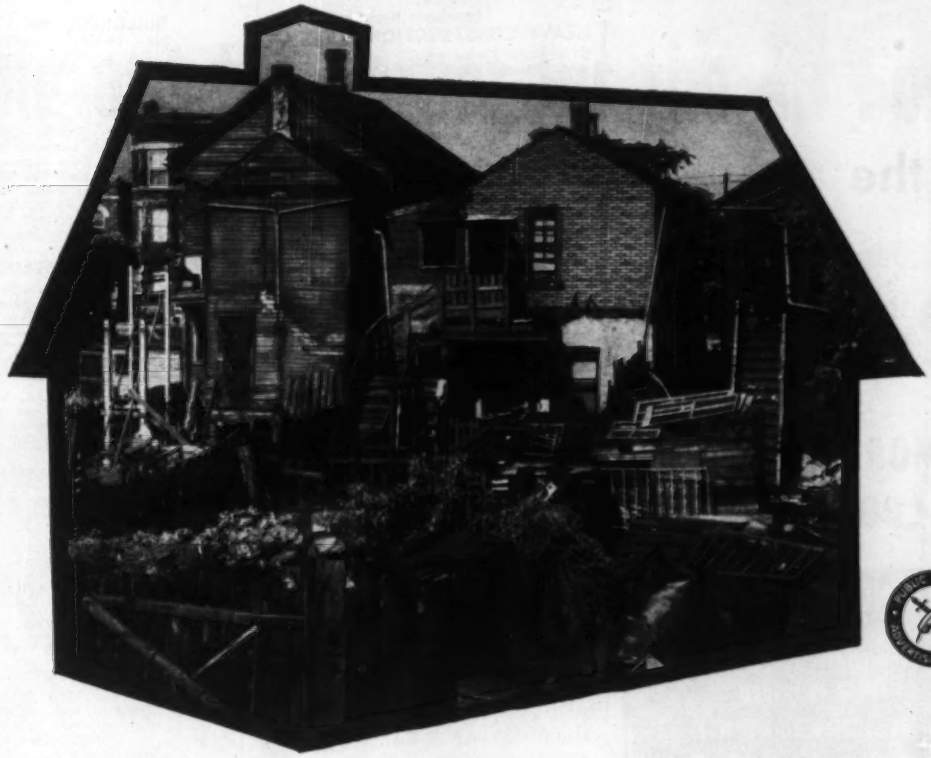
▲† **California**—BA 11/22—U. S. Eng., 751 S. Figueroa St., Los Angeles, imprv. Rio Hondo from Valley Blvd. to Rosemead Blvd., Rosemead, Los Angeles Co., CIVENG-04-353-56-19, $2,000,000. CD 10/13/54.

BUILDINGS—BA

▲ **Calif., Bakesfield**—LIBRARY—BA 11/22—Kern Co. Court House, 2 story, 56,000 sq. ft. library, $1,000,000. Whitney Bigger, 3601 Stockdale Hy., archt. CD 4/22.

Wash., Wenatchee—SCHOOL—BA 11/22—School District 146, Wenatchee, 5 brick, concrete 90,000 sq. ft. Junior High School buildings. $900,000. Plans deposit $50. Naramore, Bain, Brady & Johanson, 904 7 Ave. Seattle, and A. Erickson, Central Bldg., assoc. archts. CD 2/7.

(Continued on page 86)



We have a house to put in order...

WE HAVE A HOUSE to put in order . . . and it's the house where America lives.

Of our country's many million homes, more than 1 out of every 10 are out-and-out slums. Nearly one-half of all American dwellings are in poor to "fair" condition, and urgently need basic repairs.

Something *must* be done—both to correct the slums of today and *prevent* the slums of tomorrow.

How do slums start? Usually just one house starts to slide downhill and soon a whole block changes. Pride is lost. Other houses are neglected, decay spreads.

So the 20 million homes in need of basic repair and improvements deserve equal attention. The time to stop the spreading blight of slums is *before it starts.*

What's your stake in stopping slums?

If you think your town is different, just look around you . . . If you think slums only affect persons who live in them, think again.

Slums raise taxes and lower property values of the whole town. They raise rates of crime, delinquency and disease. *Everyone* has a real stake in stopping slums. And *that includes you as a businessman.*

Your firm is certainly dependent on the welfare of the community where you do business. But it's more than good business—it's good citizenship to take part in efforts aimed at civic improvements. It's the *responsibility* of every business.

What can your firm do? The answer to America's housing problems starts with individuals. But to roll back slums is such a big job it's going to take more than individual effort. It will need the cooperation of your business and many others.

Some slums should be torn down and a fresh start made. Others can be remodeled and made to conform to better living standards. So it is up to you to support every sound program which seeks adequate housing for all our people.

New help is now available

There is a new national, non-profit organization called A.C.T.I.O.N.—The American Council To Improve Our Neighborhoods—which is designed to help all individuals or groups interested in putting America's house in order.

Send for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It lists booklets, research, check-lists, and other material which can help you. Address P. O. Box 500, Radio City Station, New York 20, N. Y.

ACTION

American Council To Improve Our Neighborhoods

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EASTON, PA.
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Your Special Service Needs

(Continued from page 84)

HEAVY CONSTRUCTION—LB & CA

UTAH—State Road Comn., Salt Lake City, **J. B. Parsons Constr. Co.**, Smithfield, Utah, LB $765,785, bit. surf. approaches to Beck Hot Springs overpass, Salt Lake Co. Bids Oct. 18. CD 10/10.

† **M. J. Kuney Co.**, N120 Ralph St., Spokane, Wash., LB, $654,000. 5 rein.-con. masonry storage facilities buildings, Deep Creek Air Force Station, near here, Inv. 56-43, SPOKANE, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, Wash. Bids Oct. 21. CD 9/28.

▲ **CALIFORNIA**—San Francisco Bay Toll Crossing, 2054 University Ave., Berkeley, **Judson-Pacific-Murphy & Peter Kiewit Sons' Co.**, 4300 East Shore Hy., Emeryville, Calif., LB $2,919,019 (4 bidders), San Quentin approach to Richmond San Rafael Bridge, Marin Co. Bids Oct. 25. CD 9/22.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Calif.—**N. L. Basich**, 1148 S. San Gabriel Blvd., South San Gabriel, Calif., LB, $157,547, est. $180,000, plant mix surf. 1,1 mi. Holtville, Imperial Co. CD 9/26;
Calif.—**Griffith Co.**, Box 3187, San Diego, Calif., LB, $668,472, est. $723,000, (5 bidders), frontage road and 2 bridges between Fulton St. and Aero Dr., San Diego Co. Bids Oct. 20. CD 9/22.

▲ **The Arundel Corp. & L. E. Dixon Co.**, 409 S. California St., San Gabriel, Calif., LB, $8,291,698. (3 bidders) dam and power plant (Tulloch Dam and Goodwin Dam), Tuolumne Co., CALIFORNIA. Oakdale Irrigation Dist. and South San Joaquin Irrigation Dist., 322 E. "D" St., Oakdale, Calif. Bids Oct. 25. CD 8/30.

▲† **Ray Wilson Co.**, 2960 Marsh St., Los Angeles, Calif. CA $1,088,000, tactical and administrative facilities at AAA sites LA-94-C and LA-94-L, ENG-04-353-56-39. CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 14, awarded Oct. 21.

▲ **Peter Kiewit & Son**, 442 Post St., San Francisco, Calif. CA $1,366,830, water tunnel excavation in conjunction with Sunset and Crystal Springs water lines, Hillsborough, SAN FRANCISCO, CALIF. P. Utilities Comn., City Hall, San Francisco, Calif. Bids Oct. 17. D 10/20, under LB.

BUILDINGS—LB & CA

Pacific Coast Builders, 1 S. Park St., San Francisco, Calif., CA, $784,500. Washington SCHOOL, ALAMEDA, CALIF. Alameda City Unified School Dist., 1315 Oak St., Alameda, Calif. Awarded Oct. 24. CD 10/25, under LB.

▲ **Diversified Builders, Inc., Div. of Macco Corp.**, 14409 Paramount Bldg., Paramount, Calif., CA Est. $6,500,000. PLANT, FULLERTON, CALIF. Rheem Mfg. Co., Automotive Div., 477 Madison Ave., New York, N. Y. CD 10/5.
Bethlehem Pacific Coast Steel Corp., 600 Alcoa St., Vernon, Calif., CA, furnishing, erecting structural steel (Fullerton, Calif.);
L. H. Butcher Co., 3628 E. Olympic St., Los Angeles, Calif., CA, nickel and chrome plating (Fullerton, Calif.);
George M. Robinson & Co., 852 85 Ave., Oakland, Calif., CA, automatic cleaning and materials handling (Fullerton, Calif.).

▲ **Indenco, Inc.**, 960 98 Ave., Oakland, Calif., CA, $1,520,000. COUNTY OFFICE, HAYWARD, CALIF. Alameda Co., Court House, Oakland, Calif. Bids Oct. 18, awarded Oct. 24. CD 10/21, under LB.

Chotiner & Gumbiner, 5316 Venice Blvd., Los Angeles, Calif., CA, $700,000. 3 story, rein.-con. OFFICE, LOS ANGELES, CALIF. Joint Council of Teamsters No. 42, 546 S. Union Ave., Los Angeles, Calif. Kalonzes & Klingerman, 488 S. San Vicente Blvd., Los Angeles, Calif., archts. Henry M. Layne, 2500 W. 6 St., Los Angeles, Calif., engr.

▲ **Noyes H. Roach Co.**, 45 S. Figueroa St., Los Angeles, Calif., CA, $1,576,650. 175,000 sq. ft. concrete steel overhaul SHOP and 790 ft. long FREIGHT TERMINAL, LOS ANGELES, CALIF. Pacific Intermountain Express, c/o Albert C. Martin & Assocs., archts., 333 S. Beaudry Ave., Los Angeles, Calif Bids Oct. 10. CD 10/3.

Johnson, Drake & Piper, 9009 San Leandro St., Oakland, Calif., CA, $933,864. FABRICATION and ASSEMBLY BLDG., NIMBUS, CALIF. Aerojet—General Corp., 6352 N. Irwindale Ave., Azusa, Calif. Awarded Oct. 19. CD 10/24, under LB.

▲ **Williams & Burrows**, 500 Harbor Blvd., Belmont, Calif., CA, $1,999,980. 7 girls' DORMITORIES, PALO ALTO, CALIF. Bd. Regents, Stanford University, Palo Alto, Calif. Bids Oct. 6. CD 10/12, under LB.

P. L. McNutt, 728 Lower Azusa Rd., El Monte, Calif., Owner Builds, $799,000. 85 frame, stucco DWELLINGS, Mayland Ave., Siesta Ave. and Corak St., PUENTE, CALIF.

M. J. Brock & Sons, Inc., 2894 Rowena Ave., Los Angeles, Calif., CA, $722,800. 60-bed HOSPITAL, WILMINGTON, CALIF. Kaiser Foundation, c/o Clarence W. Mayhew, archt., 251 Post St., San Francisco, Calif. Bids Sept. 8, awarded Oct. 20. CD 7/27.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 9, 16 Ontario

BUILDINGS—BA

Ont., Toronto—COLLEGIATE—BA 11/10—Carter, Coleman & Rankin, archts., 2201 Kingston Rd., collegiate addn. at Winston Churchill School, for Scarborough Bd. Educ., 1650 Kingston Rd. $796,500. Plans deposit $50. Wallace Carruthers & Assocs., 35 Isabella St., engrs.

▲ **Ont., Toronto**—COLLEGIATE—BA 11/15—North York Bd. Educ., 7 Kenneth St., Willowdale, 2 story with 1 story section, 300x300 ft., poured concrete concrete block fdn., steel frame, brick, block Northview Heights Collegiate, incl. swimming pool $1,300,000. Plans deposit $100. Irving Bolgon, 321 Davenport St., and Pentland & Baker, 490 Jarvis St., archts. Wallace, Carruthers & Assoc. Ltd., 35 Isabella St., engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **Northern Constr. Co. & J. W. Stewart Ltd.**, 1304 Hornby St., Vancouver, B. C., and **Boyles Drilling Co. Ltd.**, 1291 Parker St., Vancouver, B. C., CA $2,639,878 removal of Ripple Rock, Seymour Narrows near Vancouver, BRITISH COLUMBIA. Dpt. P. Wks. Hunter Bldg., Ottawa, Ont. Bids Sept. 28, awarded Oct. 24. CD 10/11, under LB.

Curran & Briggs Ltd., Summerside, P.E.I., CA, $901,713 runway exten. and wid'n., and taxiway Summerside Airport, SUMMERSIDE, P.E.I. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Awarded Oct. 14. CD 9/26 under LB.

▲ **South Durham Steel & Iron Co. Ltd.**, c/o Vaughn & Shaw Co. Ltd., 1010 St. Catherine St. W., Montreal Que., CA approx. $12,000,000. 75,000 tons 30 in. pipe for natural gas pipe line from Fort St. John to Vancouver, part of pipe line from northwestern Alberta to California, BRITISH COLUMBIA Westcoast Transmission Co., c/o Canadian Bechtel Ltd., 326 9 Ave. W., Calgary, Alta. CD 3/2.

▲ **Atlas Constr. Co. Ltd.**, 4781 St. Catherine St. W., Montreal, Que., CA, $674,000. grubbing, burning 4 blocks training and manoeuvre area, Camp Gagetown FREDERICTON, N. B. Defence Constr. (1951) Ltd. 56 Lyon St., Ottawa, Ont. Grand total $1,504,462 Awarded Oct. 14;
Byers Constr. Co., Ltd., 5675 Western Ave., Montreal, Que., CA, $482,285, grubbing and burning 3 blocks training and manoeuvre area (Fredericton, N. B.);
Cameron Contg. Ltd., 77 Upper Water St., Halifax N. S., CA, $429,177, grubbing and burning 4 blocks training and manoeuvre area (Fredericton, N. B.).

▲ **McNamara Constr. Co. Ltd.**, 42 Industrial St., Toronto, Ont., CA, $1,549,478, concrete parking area for new terminal bldg., connecting asphalt taxiways Gander Airport, GANDER, NEWFOUNDLAND. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Sept. 9 awarded Oct. 14. CD 9/19, under LB.

▲ **Foundation Co. of Canada, Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., LB, $1,857,721, (7 bidders) wharf exten. on sections 58 to 61, Montreal Harbor MONTREAL, QUE. National Harbors Bld., West Block Parliament Bldgs., Ottawa, Ont.

McNamara Constr. Co. Ltd., 42 Industrial St., Toronto Ont., CA, $984,027, wharf, Wolfe's Cove Terminals Quebec Harbor, QUEBEC CITY, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Awarded Sept. 30. CD 9/26, under LB.

BUILDINGS—LB & CA

▲ **Bennett & White Alberta, Ltd.**, 11290 9th Ave. W. Calgary, Alta., CA $1,843,000 (10 bidders) 4 story bsmnt., 100x200 ft., steel, stone DEPARTMENT STORE addn., 4 story multi-level PARKING GARAGE, CALGARY, ALTA. T. Eaton Co. of Canada Ltd., 190 Yonge St., Toronto, Ont. Bids Oct. 1, awarded Oct. 17. CD 9/16.

▲ **Yoder Corp.**, 5500 Walworth St., Cleveland, O. U. S. A. CA, $3,500,000. design and construct pipe MILL, EDMONTON, ALTA. Edmonton Steel Fabricators, Cooking Lake Trail, Edmonton, Alta.

▲ **Dinsmore Constr. Ltd.**, Box 246, Windsor, Ont., CA $10,000,000. cement mfg. PLANT, north of Hy. No. 2, Woodstock, near BEECHVILLE, ONT. Canada Cement Co. Ltd., Canada Cement Bldg., Montreal Que. CD 6/30.

Chemical Constr. (Inter-American) Ltd., 137 Wellington St. W., Toronto, Ont., CA, $750,000. Sulphuric Acid PLANT, SHAWINIGAN FALLS, QUE. Shawinigan Chemicals Ltd., Rue des Cedres, Shawinigan Falls Que. CD 3/30.

ALASKA

HEAVY CONSTRUCTION—BA

▲† **Alaska**—JET-FUEL, GASOLINE SYS.—BA 11/15—U. S. Eng., Anchorage, underground jet-fuel and aviation gasoline sys., Elmendorf Air Force Base Inv. 56-9. $1,000,000. CD 8/22.

▲† **Alaska**—DORMITORIES—BA 11/23—U. S. Eng., 4735 E. Marginal Way, Seattle, Wash., 7 airmen's dormitories, etc., Elmendorf Air Force Base, Inv. 56-2 $3,000,000. CD 8/22.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **Smith Engineering & Constr. Co.**, P.O. Drawer 1831 Pensacola, Fla., U.S.A. CA $2,000,000. design and construct airport terminal bldgs. at Quito and Guayaquil, ECUADOR. Govt. of Ecuador, Quito Ecuador. Airways Engineering Corp., 1212 18th St. N. W., Wash. 6, D. C., U.S.A., engrs. CD 3/29/54

(Proposal Advertisements see pp. 98 to 103)

Rolling out the carpet for the Air Force —at 200 tons an hour

Bowen Construction's new GMC fleet speeds crushed rock deliveries for • new runways at Sedalia AF Base

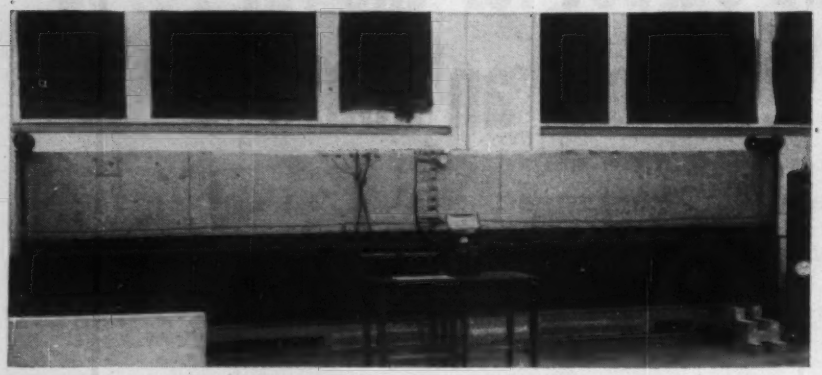
A TEAM OF 14 NEW GMC W503 TANDEMS are handling this half-million-dollar improvement project at Sedalia Air Force Base, Knobnoster, Missouri. Bowen Construction Company of Kansas City, Mo., contracted to supply 170,000 tons of crushed rock ana 30,000 tons of asphalt for paving. The job was rushed to completion by the new GMC's—delivering 200 tons of the crushed rock each hour.

HUSTLING 13 TONS OF CRUSHED ROCK APIECE AT A CLIP, these GMC's set a fast pace over the 9-mile span between quarry and job site. The trucks use 10-yard bodies with twin telescopic hoists. Their hefty loads are carried over GMC's new oversized axles — rated at 7,000 lbs. front and 22,000 lbs. tandem rear.

POWER TO PULL THROUGH THE ROUGHEST GOING comes from the W503's big new 155-horsepower engine. Despite the stop-and-go nature of the paving operation, the 14 trucks are averaging 7 mpg. The contractor's satisfaction with GMC tandems — one of 19-models — is evidenced by his recent order for 6 additional units.

GMC TRUCK & COACH — *A General Motors Division*

RESEARCH



20-FT PRESSURE-GLUED GIRDER is uniformly loaded by air pressure along its lower surface. The air chamber for applying the load runs the length of the wide-flange-support beam. Downward reactions are furnished by roller at each end.

Beam Test Uses Compressed Air as Load

An interesting method of applying a uniform load to a beam in the laboratory is being tried by the University of Alberta's Civil Engineering Department, Edmonton, Canada.

In place of the conventional downward dead-weight load, use is made of compressed air acting upward. Air pressure, in a chamber that runs the length of the beam, provides an evenly distributed force along the lower surface of the member. Pressure is supplied to the chamber by a tube from an air tank.

The opposing downward reaction at each end of the beam is furnished by a roller mounted on two steel rods. Electric (SR-4) strain gages mounted on the rods indicate the tensile stress and provide a means of calculating the upward load on the span. This method gives a check as to whether the load is applied symmetrically. An alternate method of load determination is to take readings of air pressure.

Tests are now being run by the department to answer the question of pressure-glued versus nail-glued fabrication for laminated construction. A 20-ft wooden girder of both types was tested to destruction. The results showed that the nail-glued girder had about the same strength as the pressure-glued, even though Canadian building codes require a 30% reduction in design stress when laminated design involves other than pressure-gluing.

Under the present code plywood falls in the nail-glued classification. On the basis of these tests Canadians hope for a revision in the code, which might lead to such uses as plywood girders in place of wooden trusses.

Trailer Launches Bridges

A trailer that transports and launches a bay of a floating bridge is a new development of the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Va. The trailer features a tilting bed with rollers to facilitate launching an assembled bay into the water. Rollers can be locked while in transit or retracted. The trailer can be towed by a standard 5-ton bridge truck.

Nickel-Free Steel

Patent application filed on promising development

Stainless steel containing little or no nickel may be on the way. The new product was described by Dr. Dennis J. Carney in a paper read before the Cleveland regional technical meeting of the American Iron and Steel Institute.

Patent application has been filed for the new material developed at U. S. Steel's South Works in Chicago. The new steel is a result of studies directed toward conserving nickel which is in short supply.

Dr. Carney, Superintendent of No. 2 Electric Furnace Department, asserted that more nitrogen is used in the nickel-free and low-nickel steels than was thought possible prior to the study. By the proper adjustment of the chemical composition of the steels sound ingots can be made with a nitrogen content of more than double the old limit. He said, "This discovery opened the door to an entirely unexplored area for a reduction in the use of nickel."

The author believes that further work is needed to establish more carefully the corrosion, welding and high temperature properties of the high-nitrogen steels. He also feels that several rolling and finishing problems will have to be solved.

In addition he states that the new grade of stainless steel has been developed for special fields of application and not merely as a substitute for presently used grades during periods of nickel shortage.

Research Center Started

Ground has been broken at Pittsburgh, Pa., to touch off a $400,000 building program for centralized research operations of Dravo Corp.

The Dravo Research Center will be a T-shaped masonry structure on a two-acre plot. There will be three principal laboratories: for physical testing of concrete and fabricated steel products, for research on heating and air-conditioning equipment and for testing and developing machinery used in sintering and pelletizing fines of bulk raw materials such as iron ore.

The leg of the T, a shop building 44 ft wide, 104 ft long and 25 ft high, will be completed by the end of this year.

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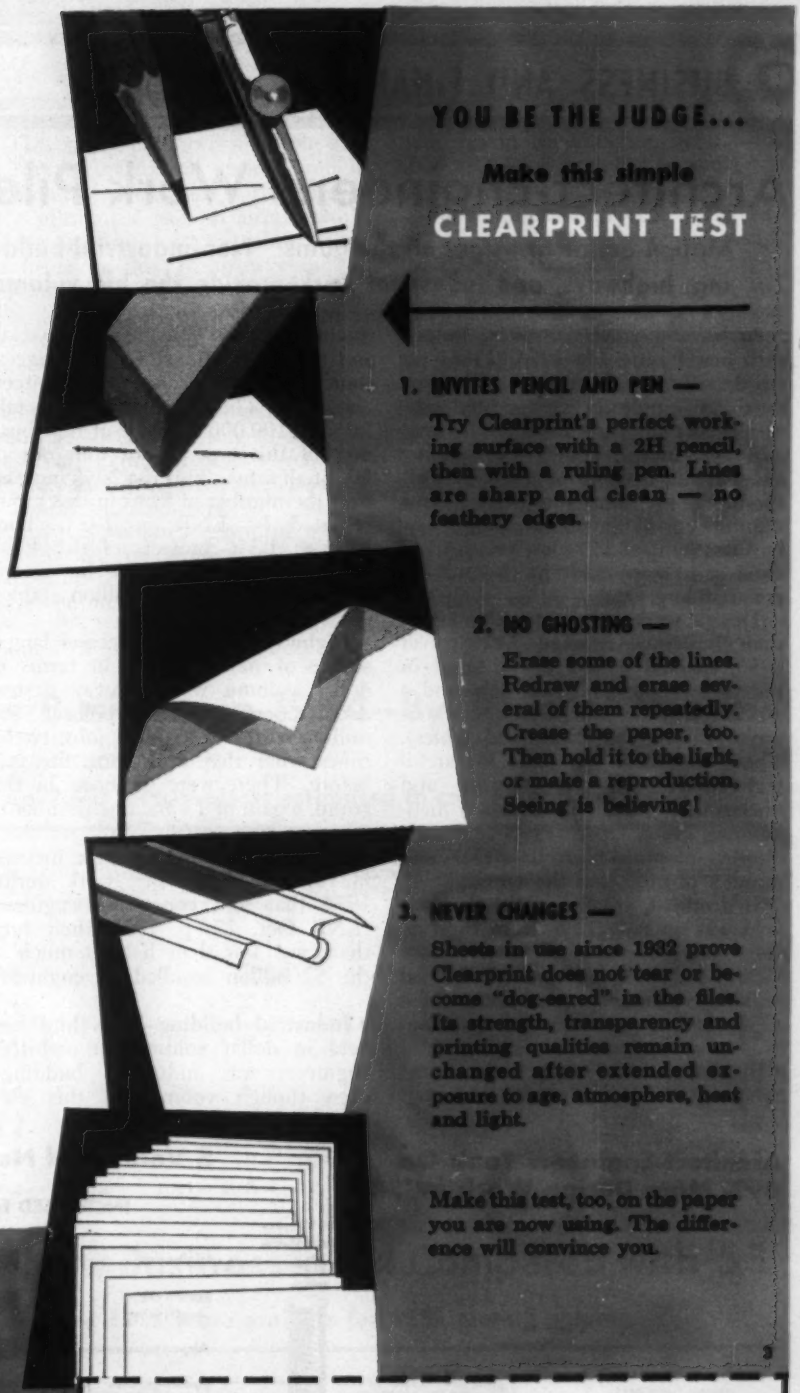

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BUSINESS AND FINANCE

Architect-Engineers' Work Piled Up in 1954

Million-dollar firms get all the gains. Non-industrial building, highways, and industrial work provide the big volume

Architect-engineers' offices bulged with new business in 1954. Piling up on the drawing boards of 470 firms were 2,407 projects with a total estimated cost of $3,665 million. These jobs mean increases of 49% in volume, and 11% in number of projects. Furthermore, the total number of firms signing up $100,000 or more new business jumped 15% last year. All of these gains were made by the million-dollar-and-up firms.

Design work on construction other than buildings zoomed 149% over 1953, sparked by a 1,134% boost in the value of new highway jobs and a 405% jump in earthwork & waterways projects (see chart and tables). There were also big gains for architect-engineers in airport work and unclassified jobs. Total other-than-building work rose 149%, though number of projects declined 3% and number of firms was the same.

In contrast, volume in the building field was up only 13% from the previous year. Number of projects rose 19%. A 25% gain in non-industrial building volume was partly offset by a 17% decline in industrial building.

• **Biggest source**—However, this broad category of non-industrial buildings (including mass housing, commercial, and public buildings) was the biggest source of new business for architect-engineers. There were 372 firms taking on $100,000 or more of new business of this type, about four out of five of all firms. This is a 20% increase over the number of firms in this group reported by ENR in 1953. They handled 1,356 projects of this kind, 28% more than in 1953, for a total volume of nearly $1.6 billion (table).

• **Highway design**—The second largest source of new business in terms of dollar volume was highway design. Architect-engineer firms took on $867 million worth of highway jobs, twelve times what they had done the year before. There were 45 firms in this group, a gain of 13%. The number of jobs rose 16% to 64. While architect-engineers got a much bigger increase in volume of highway work during 1954 than did consulting engineers (ENR Oct. 27, p. 102), their total share was less than half as much as the $2 billion handled by engineers.

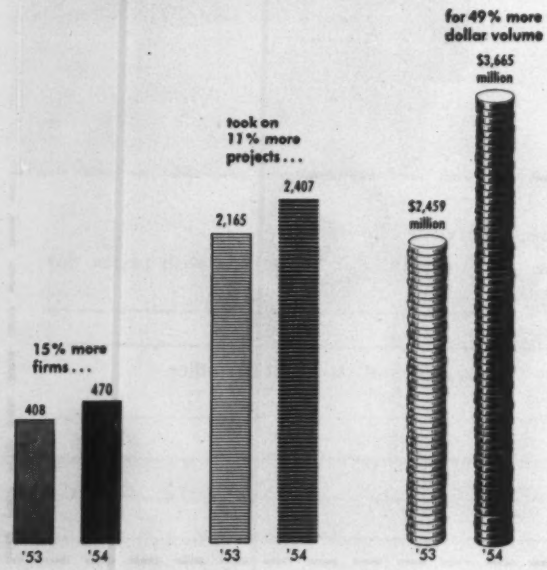
• **Industrial building**—The third best field in dollar volume for architect-engineers was industrial building—even though volume in this class dropped 17%. The number of firms active in getting new work increased 14%. All of this increase was by firms which took on a total of $1 million or more in new business. They gained 34%, while a number of firms in the $500,000-to-$1,000,000 category and firms in the $100,000-to-$500,000 class dropped sharply.

Other types of work which accounted for large portions of total architect-engineer new business in 1954 were: Airports, 218 projects costing $264 million; unclassified, 161 projects costing $198 million; and earthwork & waterways, 40 projects costing $167 million.

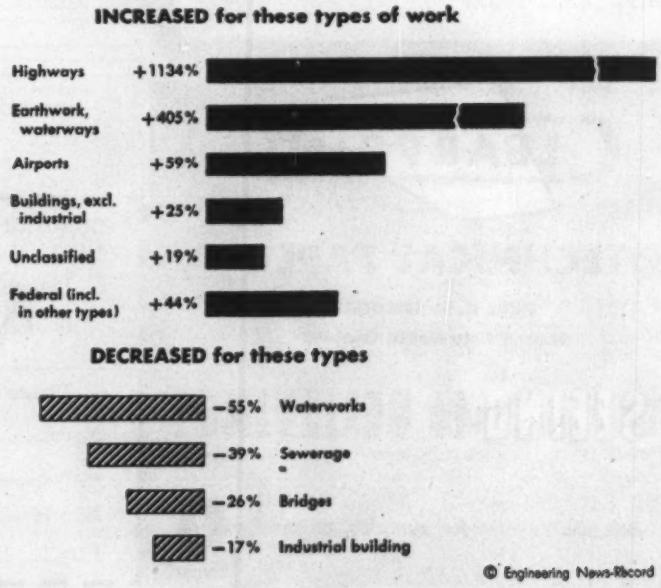
• **Million-dollar firms**—Architect-engineers who took on $1 million or more of new business in all types of construction gained 32% in number last year, while the number of firms in the other two categories declined. The same trend appeared in number of projects (up 17% for the million-dollar firms), and in volume—up 51%. The million-plus firms handled over 98% of the total dollar volume, and more than 91% of the jobs reported in the study.

The biggest percentage gains in volume, of course, were in highway work and earthwork & waterways. All but two of the 45 firms taking on highway work were in this group, and all but five of the 32 firms taking on

Architect-Engineers Took On 49% More Design Work in '54



$ Volume of New Business...



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earthwork & waterways projects.

• **$500,000 - $1,000,000 group**—New business last year dropped about 28% for firms in this group, while number of projects dropped 61% and number of firms by 19%. They handled about 1% of total dollar volume; and they had about 4% of the projects.

Naturally, most of the design work done by these firms was in the building field. In the non-building field, their biggest volume of business was in airports and unclassified work.

• **$100,000 - $500,000 group**—These firms—in the medium-size bracket—declined 12% in number, took on 12% fewer projects, and 5% less dollar volume. They handled about ½% of total dollar volume, and more than 4% of the projects.

This group produced a sizable gain in number of federal projects and in volume of federal work, partly because of a substantial gain in airport work. About two-thirds of total volume done by firms in this group was in the building field. In the non-building field, their biggest work loads were in airports, unclassified projects, and waterworks.

• **Comparing architect-engineers with engineers**—It is interesting to compare the overall figures of ENR's architect-engineer survey with last week's survey of consulting engineers.

In total volume, consulting engineers racked up almost $6.2 billion in volume of new business last year, while the architect-engineers took on almost $3.7 billion in new business. About 55% of architect-engineer business was in the building field; while about 27% of engineer business was in the building field.

The architect-engineers started 2,407 projects last year, and the average size project was about $1,523,000. The engineers had 4,713 projects, and the average cost of each project was somewhat smaller than those reported by the architects—$1,310,000.

There were 470 architect-engineer firms, with an average volume of about $7.8 million, and handling an average 5.1 projects. There were 1,250 consulting engineer firms, with an average volume of new business of $4.9 million, and handling an average of 3.8 projects.

ENR's annual survey of new business taken on by architects will appear in a forthcoming issue.

(*B&F continued on page 92*)

Architect-Engineer New Business in 1954—By Type of Work

As reported by ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY

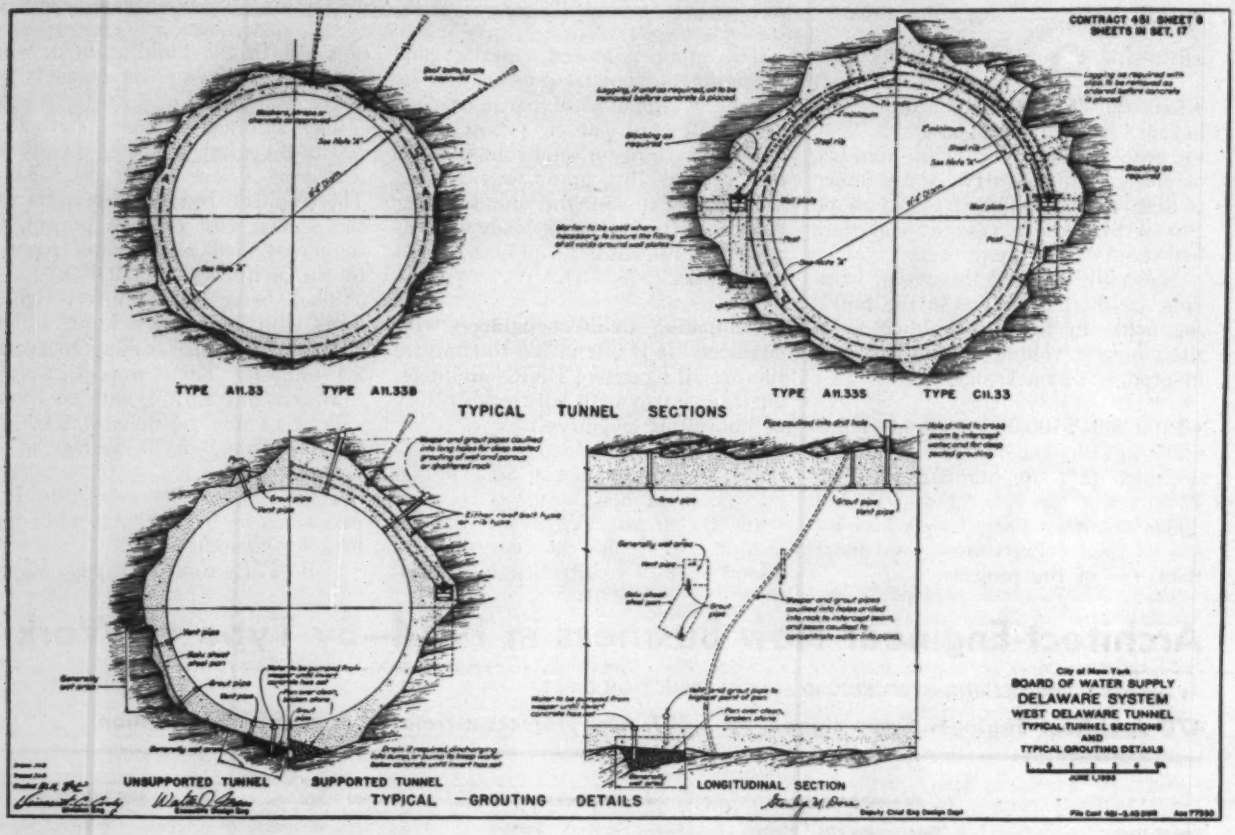
470 Architect-Engineer firms signed up 2,407 new projects estimated to cost $3,665 million

Type of Work	All Architect-Engineers Number of Firms	Projects	$ Volume Millions	Total 1954 Volume of All Types: $1,000,000 or More Number of Firms	Projects	$ Volume Millions	$500,000-$1,000,000 Number of Firms	Projects	$ Volume Millions	$100,000-$500,000 Number of Firms	Projects	$ Volume Millions
Other than building												
Waterworks	69	93	$28.3	59	84	$26.7	3	4	$0.6	7	7	$1.0
Sewerage	65	122	33.3	58	111	32.1	1	2	0.1	6	9	1.1
Bridges	20	21	76.5	20	21	76.5	0	0	0.0	0	0	0.0
Highways	45	64	867.4	43	62	867.2	1	1	0.1	1	1	0.1
Earthwork, waterways	32	40	166.7	27	35	166.5	2	2	0.1	3	3	0.1
Airports	92	218	264.0	80	201	259.7	2	2	1.7	10	15	2.6
Unclassified	105	161	198.2	88	137	194.0	8	12	2.6	9	12	1.6
Total	...	721	1,634.4	...	651	1,622.7	..	23	5.2	..	47	6.5
Building												
Industrial	169	330	444.4	137	292	435.5	14	16	4.9	18	22	3.7
Mass housing, commercial and public buildings	372	1,356	1,586.5	294	1,258	1,550.9	45	60	24.8	33	38	10.8
Total	...	1,686	2,030.9	...	1,550	1,986.7	..	76	29.7	..	60	14.5
Federal (incl. in above)	112	272	371.8	91	241	363.9	11	12	4.6	10	19	3.3
All heavy construction	470	2,407	3,665.3	350	2,201	3,609.4	84	99	34.9	86	107	21.0

How Architect-Engineer New Business in '54 Compared with '53

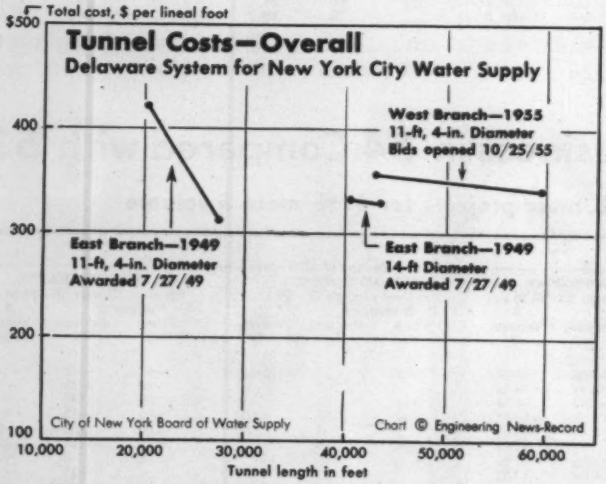
15% more firms took on new work. They had 11% more projects for 49% more $ volume

Type of Work	All Architect-Engineers Per Cent Change '53-'54 in ... Number of Firms %	Projects %	$ Volume %	Total Volume of All Types: $1,000,000 or More Per Cent Change '53-'54 in ... Number of Firms %	Projects %	$ Volume %	$500,000-$1,000,000 Per Cent Change '53-'54 in ... Number of Firms %	Projects %	$ Volume %	$100,000-$500,000 Per Cent Change '53-'54 in ... Number of Firms %	Projects %	$ Volume %
Other than building												
Waterworks	+ 6	−38	−55	+ 5	−39	−56	+50	0	+20	−42	−42	−33
Sewerage	− 6	−21	−39	+ 4	−21	−39	0	+100	0	−50	−25	−35
Bridges	+54	− 5	−26	+82	+11	−26	0	0	0	−100	−100	−100
Highways	+13	+16	+1,134	+30	+29	+1,153	−50	−50	−50	−80	−80	+800
Earthwork, waterways	+28	+60	+405	+29	+67	+409	0	0	0	+50	+50	−50
Airports	+23	+23	+59	+40	+35	+61	−82	−90	−54	+43	+114	+225
Unclassified	+12	+ 1	+19	+28	+ 4	+20	−43	−25	−13	0	0	− 6
Total	....	− 3	+149	....	+ 1	+153	....	−50	−32	....	−11	− 7
Building												
Industrial	+14	− 8	−17	+34	− 0.3	−16	−36	−47	−35	−25	−39	−26
Mass housing, commercial and public buildings	+20	+28	+25	+29	+33	+26	−12	−30	−25	+ 3	+27	+ 8
Total	....	+19	+13	....	+25	+14	....	−34	−27	....	− 9	− 3
Federal (incl. in above)	+ 9	+38	+44	+10	+47	+44	0	−48	− 2	+11	+90	+136
All heavy construction	+15	+11	+49	+32	+17	+51	−19	−61	−28	−12	−10	− 5



Tunnel Bid Far Below a Similar 1949 Contract

Twenty miles of 11-ft 4-in. concrete-lined West Delaware pressure tunnel will cost the Board of Water Supply, City of New York, only $348.08 per linear foot. This compares with $357.30 paid for a similar 47,950-ft section



1C Johnson, Drake & Piper Inc., Grafe-Callahan Constr. Co., Tecon Corp., Winston Bros. Co. and The Conduit & Foundation Corp., 88 Trinity Place, New York, N. Y.

2 Walsh, Perini, Morrison-Knudsen, Kiewit, Kaiser Cos., 122 East 42nd Street, New York, N. Y.

4 S. A. Healy Co., 61 Westchester Ave., White Plains, N. Y.... Merritt-Chapman & Scott Corp., Frazier-Davis Constr. Co., 260 Madison Ave., New York, N. Y.

	Contracts	
	451	452
1C	$16,007,805	$21,200,100
2	$17,979,999	$25,253,326
4	$19,987,000	no bid
	no bid	$26,557,900

Bids: 10-25-55		Contract 451	Unit Prices		Contract 452	Unit Prices	
Items:	Unit	Quantity	1C	2	Quantity	1C	2
Borings	lf	3,000	$10.00	$12.00	1,000	$10.00	$12.00
Excav & line wi conc shaft in earth	lf	25	2,000	1,026	68	2,000	1,106
in rock to A 6"	lf	304	1,500	763.00	173	1,500	931.00
8"	lf	194	1,550	763.00	488	1,550	931.00
tunnel to A 6"	lf	40,970	274.00	328.00	57,650	255.00	336.00
8"	lf	2,000	301.00	337.00	2,000	280.00	346.00
Excav & conc, enlarge shft and tun	cy	150	60.00	92.00	150	60.00	95.00
Cmt. mortar, prot coat	cy	3,800	45.00	63.00	5,000	45.00	59.00
Boof bolg, tun supt	lb	1,500,000	0.20	0.25	1,750,000	0.20	0.22
Str stl support, sha & tun	lb	40,000	0.75	0.25	40,000	0.75	0.24
Drill holes for roof bolt	lf	250,000	1.50	0.43	325,000	1.50	0.43
Shaft & tun, timbering	Mbf	200	150.00	402.00	300	150.00	387.00
pumping	mfg	100,000	0.20	0.10	200,000	0.20	0.10
Drill holes, grout & misc	lf	70,000	1.00	1.35	100,000	1.00	1.28
Pipes, stl, for grouting	lf	7,500	1.75	3.00	10,000	1.75	2.86
Make conns for grout	ea	3,000	4.00	20.50	4,500	4.00	19.47
Sand for filters, grout & prot coat of cmt mortar	cy	6,000	7.00	6.00	8,000	7.00	5.80
Grout, mix and place	cy	11,000	20.00	12.20	16,000	20.00	11.80
Excav in open cut, earth	cy	40,000	1.40	3.50	18,000	1.40	3.35
rock	cy	5,000	3.50	3.70	200	3.50	10.12
Refill and embank	cy	15,000	1.25	0.75	9,000	1.25	2.71
Surface dress & grass	cy	4,000	4.50	2.83	8,000	4.50	2.72
Timb & lumb, open cut	Mbf	80	350.00	438.00	60	350.00	420.00
Conc msry in open cut	cy	525	80.00	95.00	800	80.00	91.00
Rubble msry and paving	cy	200	35.00	30.00	300	35.00	29.00
Pipe, vit, asb-cmt & CM	lf	12,000	3.00	2.80	15,000	3.00	2.66
Cr stone & gravel	cy	250	15.00	12.60	250	15.00	12.00
Portland cmt	bbl	300,000	4.75	5.22	450,000	4.75	4.94
Steel for reinf conc	lb	40,000	0.18	0.25	150,000	0.18	0.24
Metal work, misc	lb	20,000	2.00	0.75	25,000	2.00	0.72
Pumpage, chlori & treat	m/mo	300	100.00	300.00	300	100.00	290.00
Liq chlor & alum sulphate	lb	30,000	0.70	0.25	50,000	0.70	0.19
Engr off & chlori houses	ls	.....	130,000	99,000	.....	130,000	106,752
Sanitary services	ls	.....	150,000	49,700	.....	181,000	52,000
Cleaning up	ls	.....	30,000	103,000	.....	40,000	76,900
Sink shaft 2 in rock & line with conc msry, 11' to A line	lf	.....	.....	.....	43	1,600	952.00
Conc msry in plug & around pump wells in Shaft 2	cy	.....	.....	.....	850	35.00	81.00
Stnl stl pipe fit	lb	.....	.....	.....	40,000	3.50	1.71

* mfg—million foot-gallons o m/mo machine-months

Liquidated damages: $500 per work day

Time to complete: 60 months

of the East Delaware Tunnel let in 1949, of $504.15 in 1955 construction dollars, if escalated up with the 6-year rise in materials and labor costs.

Low bids for the new contracts add up to $37.2 million for two sections of the West Delaware Tunnel with 4% deducted, since both contracts went to the same contractor joint venturers Johnson, Drake & Piper Inc., New York; Grafe-Callahan Construction Company, Los Angeles, Tecon Corp., Dallas, Winston Bros. Co., Minneapolis; and Conduit & Foundation Corp., Philadelphia, entered the lowest of four bids on each section. Karl R. Kennison is chief engineer for the Board of Water Supply. Thomas H. Wiggin and Malcolm Pirnie are consulting engineers.

• **New features**—New features in the 1955 bids include a system of roof bolting for tunnel support, also a change from cubic yards to linear foot of tunnel on excavation and lining bids.

For example, excavation of tunnel and lining with concrete masonry drew low bids of $255 and $274 for 6-in. and $280 and $301 for 8-in. lining per linear foot of tunnel. The 1949 bids were for cubic yards of excavation, linear feet of forms and cubic yards of concrete lining. This cannot be compared directly with the new bids.

The $16,077,805 bid for Contract 451 includes 43,000 lin ft of tunnel, an intake channel and Shaft 1, about 520 ft deep.

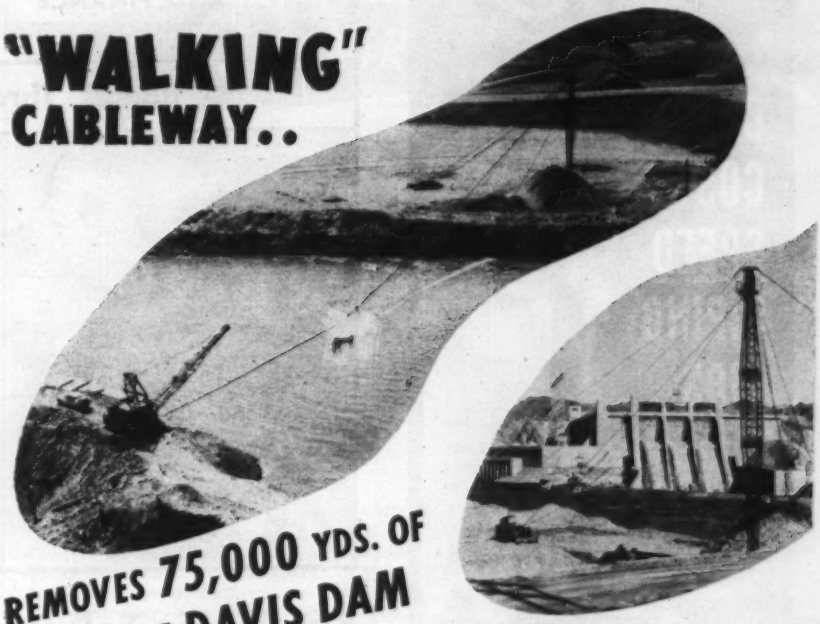
The $21,200,100 bid for Contract 452 is for the construction of about 60,000 lin ft of tunnel including Shaft 2, about 310 ft deep and, Shaft 3, about 460 ft deep.

Catskill sandstones and shales are encountered in the excavation. Protection is required to provide a safe by-pass for flood water in the West Branch of the Delaware River, Read Creek with tributaries and Baxter and Horton Brooks flowing past the sites of tunnel intake and shafts.

• **Cement specifications**—The material specifications require that portland cement be ground so that 90% to 98% by weight will pass standard sieve No. 200. Neat cement has to test at 300 lb per sq in. tensile strength after one day in moist closet and at 600 lb per sq in. after one day in moist closet and six days in water. Mortar is tested at 275 lb per sq in. tensile strength after one day in moist closet and six days in water and at 375 lb per sq in. after six and 27 days respectively.

Contracts 451 and 452 are the first two in a series of five, with bids for 453, 454 and 455 to be called for at a later date that has not yet been determined by the engineers.

"WALKING" CABLEWAY..



REMOVES 75,000 YDS. OF ROCK AT DAVIS DAM

To deepen the Colorado River from Davis Dam to 2,000 ft. downstream, Grafe-Callahan Construction Co. employed a Sauerman Slackline Cableway in this unusual arrangement:

Mast and hoist of the 2-cu. yd. machine were mounted on wooden mats. Only four "steps" were required in covering the 2,000-ft. distance as the excavation progressed. Maximum span was 600 ft. A crawler crane, running on a 30-ft. cofferdam on the opposite bank, served as tail anchor.

Total excavation was 75,000 yds. of rock. Excavation depth ranged from 10 to 15 ft. to provide the 20-ft. channel depth to lower tailwater at the power plant for maximum effective head on turbines.

Sauerman Slackline Cableways—⅓ to 3-½ cu. yds. in size—span water, bogs or pits to distances up to 1,000 ft. On the ordinary or the unusual job, this Sauerman equipment is unexcelled for deep digging or handling rock, sand, clay, peat and ore.

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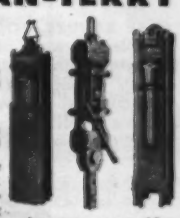

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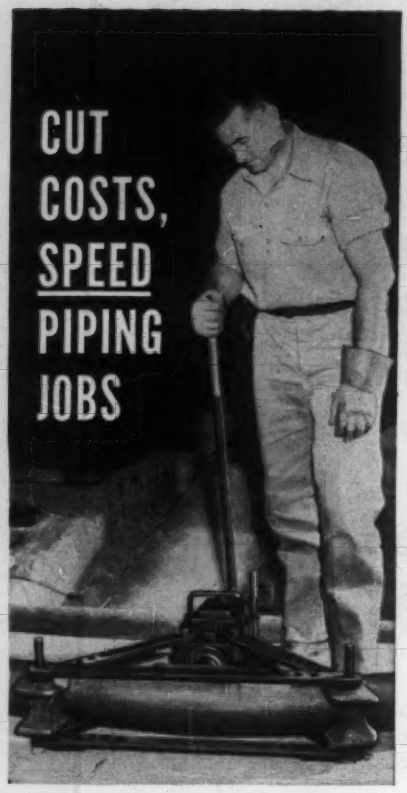

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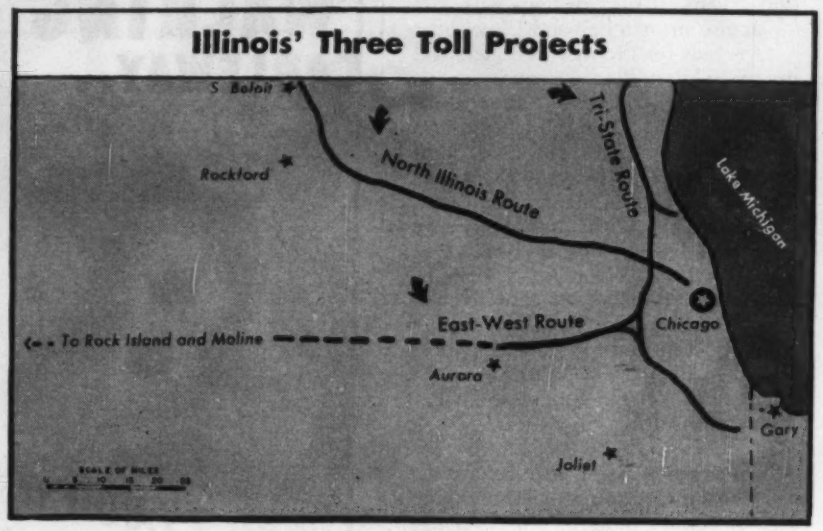


Big Illinois Toll Issue Goes Over

Long-delayed $415-million offering sells out to investors; law suit might delay it

After many delays, the biggest tollroad issue of them all was successfully sold last week to investors—but at a stiff cost to the borrower, and with a lawsuit still hanging overhead.

A huge group of investment banking houses put in a bid for the $415-million offering of 40-year 3¾% bonds at 98% of par, which means a net interest cost of 3.83% to the Illinois Toll Road Commission. This issue will finance 193 miles of turnpikes in the Chicago area (map). If all goes well, construction is expected to start next spring, with some routes to open by November, 1957. The whole system is expected to be finished by the start of 1959.

• **Hefty yield**—Having bought this king-sized issue, the underwriters re-offered the bonds at par. This means a tax-exempt yield of 3¾%, equal to a taxable yield of about 7.80% for corporations, and higher than that for wealthy individuals.

Wall Street says the issue has been sold out, except for blocks of bonds in the hands of members of the underwriting syndicate who are holding on in hopes of selling later at a profit. Shortly after the offering, the bonds were being re-offered by early buyers above the offering price.

• **Why it went over**—Bond-market observers say there are two excellent reasons why this tremendous issue went over so well in a so-so bond market: (1) the whacking yield which it offers corporations and wealthy individuals. (2) the high-density traffic that is certain to be developed in the Chicago area.

In general, the usual big buyers of tollroad issues—the life insurance companies—bought small blocks of the issue or sat this one out.

If the underwriters had been able to place more of these bonds with life companies in advance of making their bid, they would have been able to offer the borrower a better price. For instance, the biggest previous tollroad issue, the Ohio Turnpike issue of $326 million in 1952, sold to underwriters at a net interest cost about 3¼%.

• **Three routes**—The bond issue will finance: (1) the North Illinois Route, an 88-mile toll road from Chicago northwest to South Beloit on the Wisconsin border; (2) the Tri-State Route, an 80-mile beltway around Chicago from Indiana to Wisconsin border; (3) the east-west route, a 25-mi stretch out to Aurora, Ill. These pikes will connect with Cook County Expressways, some already built, some financed but not yet built, and some of which are yet to be financed.

The Illinois toll issue has been postponed for many months by lawsuits. And, the whole deal could still be blocked again. Even as last week's financing got under way, a new suit was filed, asking to have the three routes financed by separate bond issues. This will have to be cleared up before the bonds are delivered to purchasers in December—though there is a provision for another 45-day postponement after that.

Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

(millions of dollars) By Ownership	This Week	Cumulative 44 wks 1955	1954	% chge
Federal	$18.7	$1,438.4	$1,059.4	+36
State and municipal ...	96.9	4,550.8	4,193.9	+9
Total public....	115.6	5,989.2	5,253.3	+14
Total private...	278.4	10,064.4	6,857.8	+47
U. S. Total....	$394.0	$16,053.6	$12,111.1	+33

By type of work

Waterworks	$3.8	$235.1	$202.9	+16
Sewerage	6.7	339.5	326.5	+4
Bridges	7.7	414.9	421.1	−1
Highways	44.6	1,865.6	1,621.2	+15
Earthwork, waterways ...	2.5	464.4	274.5	+69
Buildings:				
Public, excl. hsg.	21.3	1,484.0	1,474.1	+1
Public housg..	10.8	235.9	200.8	+17
Private housg.	117.1	5,422.3	3,594.7	+51
Commercial ..	65.6	1,458.7	1,159.7	+26
Industrial ...	91.2	2,434.2	1,592.5	+53
Unclassified	22.7	1,699.0	1,243.1	+37
U. S. Total....	$394.0	$16,053.6	$12,111.1	+33

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

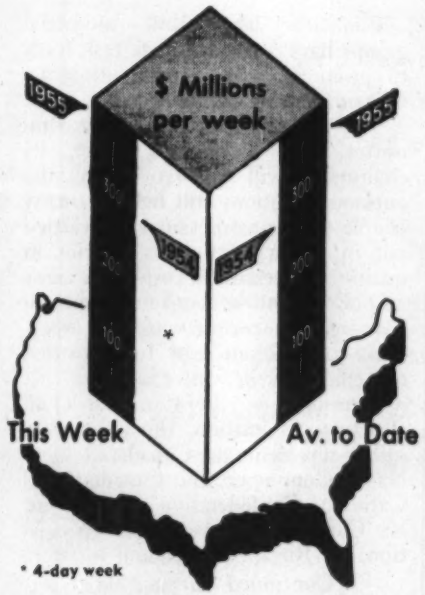
New capital for construction

(millions of dollars)	Week of Oct. 27	Cumulative 43 Wks 1955	1954	% Chge '54-'55
Corporate securities.....	$66.4	$2,908.0		+19
State and municipal:				
All except housing.....	101.8	3,515.6		−21
Housing	7.9	79.9		−12
Federal loans	4.1	114.4		+13
Federal aid	...	853.5		+27
Total nonfederal	176.1	7,467.5		−4
Federal appropriations:				
In U. S.....	...	$3,379.7		+63
Outside U. S.....	...	84.6		+155
Total new capital.....	$176.1	$10,931.8		+11

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost...	10/27	673.46	323.73	141.18
	9/29†	673.95	323.97	141.28
Building cost	10/27	479.36	259.13	136.26
	9/29†	480.05	259.50	136.46
Volume	Sept.	576	234	166
	Aug.	508	207	147

† Official Indexes for October



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LABOR

AFL's George Meany and CIO's Walter Reuther see . . .

No Roadblocks Left to Labor's Merger

The American Federation of Labor and Congress of Industrial Organizations, official name of the new 14.7-million member labor organization, will become a reality when the AFL and CIO meet in joint convention in New York City on Dec. 5.

That was the "confident" opinion of George Meany and Walter Reuther when the AFL-CIO Unity Committee last week concluded its New York session at which John W. Lingston, a vice president of the United Automobile Workers, CIO, was unanimously designated AFL-CIO Director of Organization, destined to be one of the most significant posts in the new labor group.

• **Dedicated to nation's welfare**—Stressing the "good will and mutual confidence" with which the final roadblocks to successful completion of "operation merger" had been removed, CIO President Reuther said the entire CIO family, except for Michael Quill and his CIO Transport Workers, were solidly behind the merger.

Organization plans on the regional level were completed and directors for each of the 22 new AFL-CIO regions were selected—13 from the AFL and nine from the CIO. Most of the blueprints for the Washington staff headquarters were completed and the proposed constitution, as initially drafted, was again approved with only minor changes.

Highlighting the emphasis to be placed by the AFL-CIO on its political and educational program, the political action department is now slated to have two bosses. Tentatively selected as co-directors are Jack Kroll, head of the CIO Political Action Committee, and AFL's James L. McDevitt, director of Labor's League for Political Education.

Outlining the progress that has been made, AFL President Meany assured the nation that the new federation will be dedicated to the welfare of every man, woman and child in America." It's fundamental aim, Reuther added, is the development of the labor movement, of which the whole is more important than any of its parts.

• **No monster in the making**—To those who have been both skeptical and critical of labor's new centralized authority, Reuther had this to say: "it in no way invades the autonomous rights" of the constituent members. Only in the fields of communism and corruption, where some central authority is necessary to assure a "decent and moral trade union movement," he added, will the new organization "even remotely tamper with autonomy."

And Meany stressed the fact that the merger does not mean that small unions will be gobbled up by larger ones. It has never been intended, he said, that solutions to conflicting claims and overlapping jurisdictions would be reached by any except voluntary means. Last week's changes in the proposed constitution, he stated, now make it unmistakably clear that union merger cannot be compelled by higher authority and that inter-union mergers as well as agreements will remain on a voluntary basis.

According to Reuther, "it would be unrealistic to say" that inter-union conflicts present no problem to achievement of one of the new federation's major goals—organization of the unorganized. An obvious champion of "a practical, effective organizational crusade," he expressed "unlimited confidence" in labor's ability to overcome the obstacles, once the "emotionally powerful and dynamic forces" of the merger are set in motion. He predicted that "cooperation for the good of all" will be the inevitable result of the tremendous potential that can be achieved by a united labor organization, now "overwhelmingly" supported by the rank-and-file.

Winter Employment

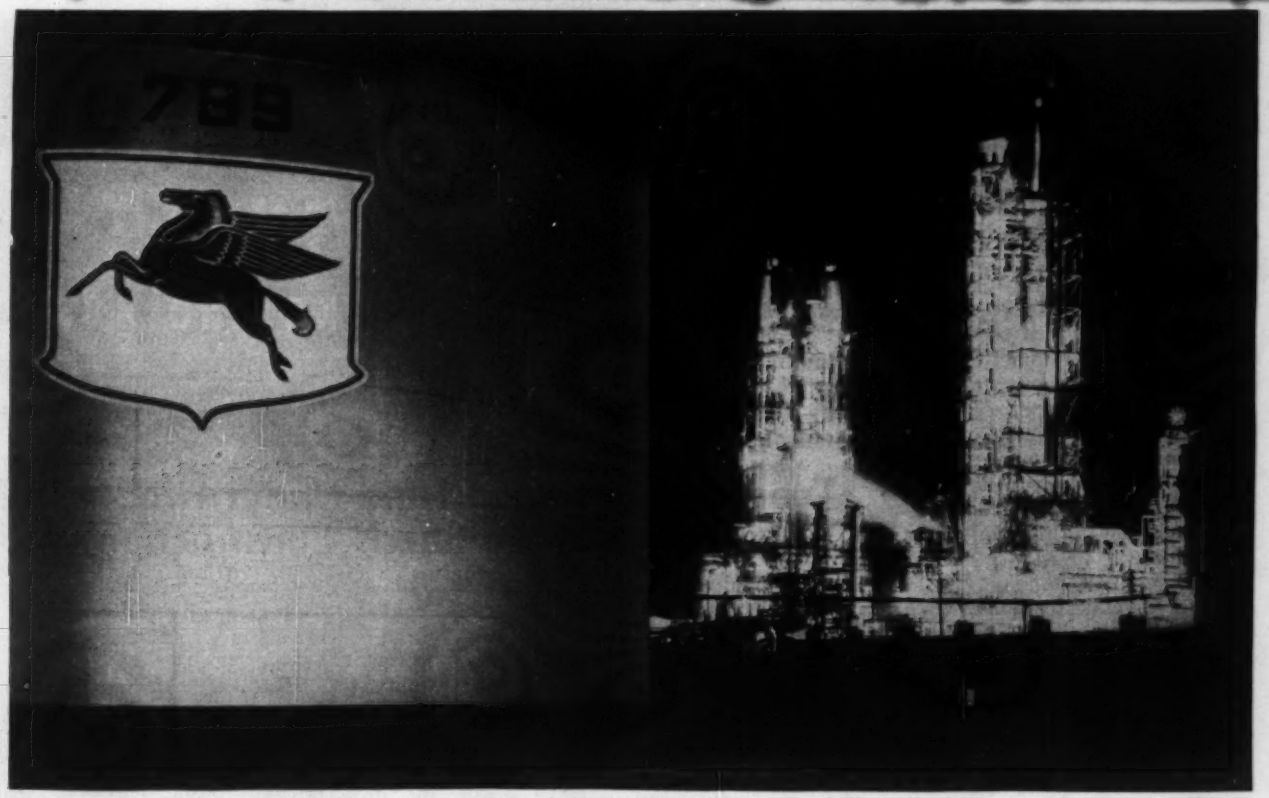
Canadian groups hope to lessen seasonal layoffs

Canadian labor and industrial groups have formed a huge task force to promote greater construction activity during winter months.

The principal task of the new committee, said Raymond Brunet, its chairman, "will be to overcome the outmoded notions still held by many people that construction work carried out in the wintertime is inferior in quality or excessive in cost. Such views do not take into account modern techniques which permit with few exceptions construction work to be carried out efficiently in winter weather."

Sponsored by the Canadian Construction Association, the joint committee represents the Canadian Chamber of Commerce, the Canadian and Catholic Confederation of Labour, the Canadian Manufacturers' Association, the Royal Architectural Institute

(*Continued on page 98*)



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of Canada and Trades and Labour Congress of Canada. The Federal Department of Labour and the National Research Council are also actively associated with the project.

The joint committee emphasized that the timing of construction jobs depend mainly on the decisions of owners and the actions of architects and engineers engaged to design the project. A recent Cabinet directive to all federal departments and agencies to commence their projects so as to bring about the maximum amount of wintertime employment, was commended and a similar policy is to be advocated to other government bodies, banks, religious organizations, utilities, large industrial firms, and individuals who contemplate building.

Other activities approved by the Joint Committee in its campaign for levelling out the construction program include:

- The preparation of a booklet describing wintertime construction techniques.
- A study of methods followed in Scandinavia in making construction a "year-round" activity.
- Establishment of local joint committees to promote wintertime construction in their areas.
- A comprehensive publicity and education program by each of the member organizations of the National Joint Committee.

Brunet pointed out that although the construction industry is experiencing record demands for its services, construction workers drew over $33 million in unemployment benefits last winter. Unless the situation changes, he said, "about one quarter of the half million construction workers now employed will be laid off next February."

Jobless Benefits

Ohio voters to settle controversy next month

The big debate over liberalization of unemployment insurance benefits—which proved to be one of this year's most active legislative issues—has continued unabated in Ohio, where it will come before the voters in the November election. If the initiated proposal, sponsored by the Ohio CIO Council, is approved, the state will have the nation's most liberal unemployment compensation law.

With the possibility of adding millions of dollars to the cost of doing business in Ohio, the proposed amendment would raise benefits to a maximum of $50 for 39 weeks, with an additional maximum dependency allowance of $9 a week. It would also permit receipt of payments under guaranteed annual wage plans without prejudice to unemployment insurance benefits.

Earlier this year, the state legislature boosted jobless benefits from $30 to $33 for 26 weeks and provided for a maximum dependency allowance of $6. This was termed "inadequate" by the CIO, which decided to carry the issue directly to the voters.

Opposition to the measure is spearheaded by the Ohio Information Committee, Inc., headed by the Republican chairman of the industry and labor legislative committee. Other opponents include the Ohio Chamber of Commerce, the Ohio Manufacturers Association and the Ohio Farm Bureau Federation. In addition to labor groups backing the proposal, a statewide citizens group called the Committee To Protect Standards of Living has been formed to seek voter support.

Advocates claim approval is necessary to permit the unemployed to live in greater dignity and decency and contend the measure would help to stabilize the economy during lay-off periods. Opponents say it would boost the cost of consumer products and services and would give "too much pay for not working."

Teamsters' Pension Fund Under Fire As West Coast Strike Snarls Construction

The multi-million-dollar teamsters' strike against rock product producers in southern California (ENR, Oct. 27, p. 109) rolled along last week with no settlement in sight.

Unsuccessful efforts were made to bring relief to a number of emergency flood control projects under construction by the Corps of Engineers and the Los Angeles Flood Control District. Members of the rock industry offered to furnish concrete aggregates from their stockpiles for jobs falling within the emergency classification. The union agreed to cooperate. But agreement could not be reached on details of supplying the vital materials.

The Corps of Engineers worked out a partial solution to the emergency it faced by setting up portable rock aggregate plants near Santa Fe Dam in San Gabriel Valley. Construction was kept moving on most of its highly critical projects.

• **NLRB investigation**—As the seriousness of the strike increased, representatives of the National Labor Relations Board continued their investigation into the employers' charge of unfair labor practices. Meanwhile a second suit against the teamsters, basically the same as the one previously started by members of the Rock Products Association, has been filed with the NLRB by a San Bernardino rock aggregate producer.

The charges are directed against the unions' pension plan calling for employer contributions to the Western Conference of Teamsters Pension Fund. The firms believe this is the first case filed to test the legality of such a fund under federal law.

• **Nature of pension fund**—The fund under dispute was designed by teamsters to enable union members in 11 western states to move from one employer—or industry—to another, without loss of pension benefits. According to one union official, the fund is particularly vital to teamsters because of their high degree of mobility. He estimated that "probably less than 5% of drivers stay with one firm more than five years."

Fund operations are under direction of a 14-member board of trustees, half appointed by labor and half by management. Administrative headquarters are in Seattle, with regional administrators in four areas.

A number of different industries in 11 western states now have contracts calling for contributions to the fund, including trucking and allied industries in the southwest area, and breweries, groceries, aircraft, and rock, gravel and ready-mix producers in the Seattle area. West coast breweries were the first to enter the plan.

• **Employers' complaint**—In their eight page report filed with the NLRB, the employers claim that union demands for such a fund violate the federal labor law in a number of respects. They question whether the union can legally remove the subject of pension benefits from collective bargaining between a local employer and union bargaining agents. They also assert that the pension plan encourages union membership in a manner not contemplated or permitted by law.

A major complaint indirectly involved is addressed to the broad authority of the trustees in fund administration. According to the employers, "these trustees have absolute and final power to interpret the trust agreement, to determine any employee's rights to benefits, to incur unlimited expenses, and to amend the trust agreement and the pension plan in any respect at any time.

The firms also say they would have little voice in directing the trustees or in choosing them.

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Excavation Work on Seaway Hit by Organization Drive

Excavation contractors on a Canadian section of the St. Lawrence Seaway have been faced with labor stoppages as part of an organizing drive of the International Brotherhood of Teamsters, which has sought contracts from seven firms.

Last month, one walkout closed down work being done by Miron & Freres under two contracts, totaling $2.9 million, for excavation and dike construction in the Montreal area.

More than 1,000 men are working on the projects and many of them are teamsters, who haul away the material to cofferdam and dike locations. Until the work stoppages began, the jobs were ahead of schedule.

The union undertook to negotiate directly with the company, instead of through the Quebec Provincial labor board, and was reported to have been making headway toward recognition as collective bargaining agent and toward wage increases when the talks broke off, and a "continuous meeting" of union members began.

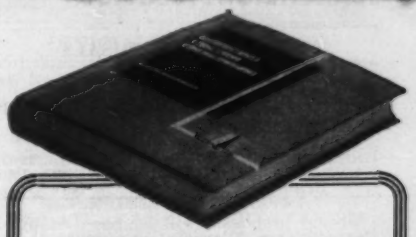
As the stoppages threatened to spread to other seaway construction projects involving millions of dollars worth of work, the Provincial Government intervened and the walkouts were halted.

Labor Briefs . . .

• **Whose jurisdiction?**—Construction of the new power plant for Kentucky Utilities Co. near Harrodsburg, Ky., was again halted when ironworkers picketed the job as a protest against unloading of pipe by steamfitters. Although the ironworkers contended the work should be theirs, others said it should really go to laborers.

• **Rate goes down**—Despite 1955 liberalization of workmen's compensation benefits, Michigan's insurance commissioner has been able to reduce compensation premium rates an average of 3.9% as a result of improved experience. It had been predicted earlier that the liberalizing legislation would entail a 2% boost in rates.

• **Political contributions**—The steering committee or Labor's Political League (representing the AFL, CIO and independent unions) in Milwaukee County will seek—if state labor groups approve, a court ruling on the application and constitutionality of Michigan's new Catlin Act, which bans political contributions by labor organizations.



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SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: November 30, 1955

Delaware River Turnpike Bridge

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg Pennsylvania
NEW JERSEY TURNPIKE AUTHORITY
New Brunswick New Jersey

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission and the New Jersey Turnpike Authority, acting in conjunction as specified in the proposal Documents, until 10:00 a.m. Eastern Standard Time, November 30, 1955, for Contract PN6 for the furnishing and installation of electrical equipment for the Delaware River Turnpike Bridge. This Contract will include the complete installation of a roadway lighting system and traffic signal control system on the superstructure of the Bridge, which is approximately 6600' in length between abutments.

The principal items of work include:
Two transformer and control vaults with equipment.
A roadway lighting system including sixty-seven lighting standards with luminaires, mercury-vapor lamps, and distribution and control equipment.
Traffic signal system including fifteen traffic signal bridges with traffic signals and distribution and control equipment.
Navigation and obstruction lighting system and distribution and control equipment.

All of the work is located in Bucks County, Pennsylvania, or Burlington County, New Jersey.

Proposals will be received at the Administration Building of the Pennsylvania Turnpike Commission, 11 North Fourth Street, Harrisburg, Pennsylvania, and immediately after the hour for closing be taken to the Public Utility Commission Hearing Room No. 1, North Office Building, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud.

Proposal Documents may be examined during office hours after November 10, 1955, at the office of the Pennsylvania Turnpike Commission or at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey. Proposal Documents will be furnished upon payment of twenty dollars ($20.00) for each set. No refund will be made.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance, Secretary-Treasurer
NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
October 31, 1955

Bids: November 30, 1955

City of New Rochelle, N. Y. Department of Public Works

INVITATION TO BIDDERS

1. Sealed bids will be received by the DIRECTOR OF PUBLIC WORKS of the CITY OF NEW ROCHELLE, N. Y., at the COUNCIL CHAMBER, CITY HALL, 515 Main St., New Rochelle, N. Y., until 10:00 A.M. Eastern Standard Time NOVEMBER 30, 1955, for the construction of:

A SECTION OF THE STEPHENSON BROOK STORM WATER DRAIN BETWEEN STATION 30+00 AND 33+50 (N. Y., N. H. & H. R. R.—New England Thruway Crossing)
(Project No. 26-828-P2)
In The
CITY OF NEW ROCHELLE, N. Y.

in accordance with the Plans, Specifications and Contract Documents on file in the BUREAU OF ENGINEERING, 28 Wildcliff Drive, New Rochelle, N. Y., where they may be examined on and after October 31, 1955.

2. Each bid must be accompanied by a DEPOSIT in the form of certified check or cashier's check, made payable to the CITY OF NEW ROCHELLE, N. Y. in the amount of Twenty Thousand Dollars ($20,000.00). Bid bonds or cash will not be accepted. Each Bidder is required to submit a proposal for each of the two Alternate schemes. No bid will be accepted unless it contains two such proposals.
3. Copies of Plans, Specifications and Contract Documents may be obtained at the BUREAU OF ENGINEERING beginning October 31, 1955, upon payment of TWENTY DOLLARS ($20.00) *in cash* for each set. Upon return of all such documents in good condition within *one week* after the bidding date, TEN DOLLARS ($10.00) will be refunded. If all such documents are not returned within the specified time, the entire cash payment will be forfeited. The City reserves the right to reject any or all bids.

E. H. FELDMAN
DIRECTOR OF PUBLIC WORKS
Date: October 28, 1955

Bids: November 17, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Barge Canal Improvement Law and Public Buildings Law, sealed proposals will be received, until 10:30 A.M., on November 17, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract U. S. 89 for Lowering the Lower Sill, Footing of Approach Wall, Floor of Lock Chamber, Installing New Lower Gates and Performing Other Misc. Work at Lock No. 9, Erie Canal, Schenectady County, New York

AND

Contract B.P. 55-55 for Beach Protection (Hydraulic Fill and Sprigging) at Smith Point Town of Brookhaven, Suffolk County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, N. Y.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract U.S. 89 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y. and the plans, maps and specifications for Contract B.P. 55-55 may be examined and obtained at the office of Mr. M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L. I., N. Y.

The deposit for Plans and Proposal Forms for each contract is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract U.S. 89 is confidential and will be made known at the time of receiving bids. The Engineer's Estimate of Cost for Contract B.P. 55-55 is $528,000.00.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Barge Canal Improvement Law for Contract U.S. 89 and to the Public Buildings Law for Contract B.P. 55-55, as set forth in "Instructions to Bidders" in the respective contract specifications.

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: November 29, 1955

Allegheny County Sanitary Authority Intercepting Sewers

CONTRACTS 46, 47 and 49

Sealed bids or proposals for Contracts 46, 47 and 49, for constructing portions of an intercepting sewer, generally in rock tunnel, with connections and other appurtenances will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2:00 P.M. Eastern Standard time on Tuesday, November 29, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grant Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 46 includes approximately three miles of intercepting sewer varying from 54" to 126" inside diameter.

Contract 47 includes approximately three miles of intercepting sewer varying from 36" to 60" inside diameter.

Contract 49 includes approximately six miles of intercepting sewer varying from 48" to 72" inside diameter.

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh, Pa. A deposit of one hundred dollars ($100) will be required for one set of drawings and contract documents on each contract, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty dollars ($50) will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond, each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

Bids: November 15, 1955

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT
CANADIAN NATIONAL RAILWAYS
RELOCATION SUPPLY OF BALLAST

SEALED TENDERS, in quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario, and clearly marked
"TENDER FOR ST. LAWRENCE POWER PROJECT CANADIAN NATIONAL RAILWAYS RELOCATION SUPPLY OF BALLAST"
will be received up to 4.30 o'clock p.m., Eastern Standard Time, on
TUESDAY, NOVEMBER 15, 1955
for approximately 411,000 cubic yards of crushed rock or slag to be used as ballast material in the relocation of the Canadian National Railways at the St. Lawrence Power Project.

Delivery as follows:
May 1 to Nov. 13, 1956—250,000 cu. yds.
May 1 to Nov. 13, 1957— 90,000 cu. yds.
May 1 to Nov. 13, 1958— 71,000 cu. yds.

Copies of the tendering documents may be obtained on or after October 25, 1955, at the office of the Director of Supply, 620 University Avenue, Toronto 2, Ontario, on payment of $25.00 for each set. This charge will not be refunded.

Tendering documents may be inspected at the above location and at the offices of the following: the Commission's Field Office, Cornwall, Ontario; Power Authority of the State of New York, 270 Broadway, New York 7, New York; and Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts.

Tenders must be accompanied by a certified cheque drawn on a Canadian chartered bank for the sum of fifty thousand dollars ($50,000). Provisions for the return of the cheque appear in the tendering documents. The successful tenderer will be required to furnish a performance bond in the form approved by the Commission and issued by a bonding company licensed as such in the Province of Ontario and acceptable to the Commission for one hundred per cent (100%) of the total amount of the contract.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON
SECRETARY

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: November 22, 1955

Contract PN-290.001

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
RESTORATION OF FIRE DAMAGED FINGER PIER

Sealed proposals for the restoration of the fire damaged finger pier on the north side of the City Channel at Port Newark, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, November 22, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, November 3, 1955

Bids: November 30, 1955

Sanitary Trunk Sewer

LEGAL NOTICE

SEALED PROPOSALS will be received at the office of the DIRECTOR OF PUBLIC SERVICE, AKRON, OHIO, until 12:00 o'clock noon (Eastern Standard Time) Wednesday November 30, 1955 for the construction of the:

MUD RUN SANITARY TRUNK SEWER
FROM
LEESER AVENUE
TO
HAWKINS AVENUE

Drawings, specifications and blank proposals can be obtained at the office of the Engineer of the Division of Sewerage, by making a deposit of Five Dollars ($5.00). This deposit will be refunded if a proposal is submitted and the drawings are returned in good condition, within five days after the date the proposals are received.

Each proposal must contain the full name of the party or parties making the same, and all persons interested therein, and must be accompanied by a certified check in the sum of Five (5) per cent of the total bid on a solvent bank, as a guarantee that if the proposal be accepted, a contract will be entered into.

Bidders must use the printed form, as none other will be accepted.

The Director of Public Service reserves the right to reject any or all bids.

THE CITY OF AKRON, OHIO
BY Leo G. Walter
Director of Public Service

Prequalification Date: November 9, 1955

Board of Education —Bureau of Construction Notice Re Prequalification Forms for Contractors

NOTICE IS HEREBY GIVEN THAT THE Director, of the Bureau of Construction, 4th Floor, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification of bidders, from contractors who may wish to submit bids for the proposed hereinafter specified contracts, as follows:

For (1) general construction, (2) plumbing and drainage, (3) heating and ventilating, (4) electrical work and lighting fixtures for the following schools:

BOROUGH OF BRONX
Junior H.S. 101, Huntington & Lafayette Aves., New Building.
Public School 140, Cauldwell Ave., & East 163rd St., New Building.

BOROUGH OF BROOKLYN
Junior H.S. 33, Stockton St. & Marcy Ave., New Building.
Junior H.S. 61, Empire Blvd. & New York Ave., New Building.
Public School 261, Hoyt, Dean & Pacific Sts., New Building.
Bushwick H.S., 400 Irving Ave., Modernization and Addition.
Erasmus Hall H.S., 911 Flatbush Ave., Modernization.

BOROUGH OF MANHATTAN
Public School 41, West 11th St. and Ave. of Americas, New Building.
Junior H.S. 129, West 130th St. & Convent Ave., New Building.

Prequalification application forms will have to be secured and must be submitted to the Director, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York.

Bids will be received from prequalified bidders only.

The time for submitting prequalification application forms for the above contracts will expire on Wednesday, November 9th, 1955.

WILLIAM H. CORREALE
Director
Dated: October 24th, 1955.

Bids: December 20, 1955

Allegheny County Sanitary Authority Sewage Treatment Plant

CONTRACTS 34 to 44, INCLUSIVE

Sealed bids or proposals for Contracts 34 to 44, inclusive, for constructing portions of the Pittsburgh Sewage Treatment Plant, will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2:00 P.M. Eastern Standard Time on December 20, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grand Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 34 includes constructing all foundations and substructures, main sewage conduits, and service tunnels for the Pittsburgh Sewage Treatment Plant.

Contract 35 includes furnishing and installing pumping equipment and furnishing electrical controls for main pumping station.

Contract 36 includes furnishing and installing mechanical equipment and process piping for the Pittsburgh Sewage Treatment Plant and intercepting structures.

Contract 37 includes constructing river wall at the Pittsburgh Sewage Treatment Plant.

Contract 38 includes furnishing and installing sludge incineration equipment for the Pittsburgh Sewage Treatment Plant.

Contract 39 includes constructing chimney at the Pittsburgh Sewage Treatment Plant.

Contract 40 includes construction of superstructures at the Pittsburgh Sewage Treatment Plant and interceptor structures.

Contract 41 includes electrical work at and Pittsburgh Sewage Treatment Plant and interceptor structures.

Contract 42 includes plumbing work for the Pittsburgh Sewage Treatment Plant and interceptor structures.

Contract 43 includes heating and ventilating work for the Pittsburgh Sewage Treatment Plant and interceptor structures.

Contract 44 includes miscellaneous exterior work at the Pittsburgh Sewage Treatment Plant.

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh, Pa. A deposit of one hundred dollars ($100) will be required for one set of drawings and contract documents on each contract, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty dollars ($50) will ge refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY
SANITARY AUTHORITY
Edmund S Ruffin, Jr., Chairman

Bids: November 22, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF GATE HEATERS AND APPURTENANCES
SPECIFICATION NO. PA-5-14013
ST. LAWRENCE CONTRACT NO. P27

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of Gate Heaters and Appurtenances and delivery thereof, f.o.b. destination in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M., Eastern Standard Time on the 22nd day of November, 1955, 270 Broadway, Hearing Room C on the sixth floor, New York, New York.

(2) If mailed in until 10:15 A.M., Eastern Standard Time on the 22nd day of November 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above. Bids will be entertained for the Gate Heaters, associated equipment and services in accordance with the bidding schedule. Erection at the site of installation will be done by Others but services of erecting engineers shall be provided by the manufacturer if and when required. Delivery of the Gate Heaters and Appurtenances will be required starting July 1, 1956.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. Bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid for the schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-14013
10/21/55

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4438) will be received at Phoenix, Arizona, until November 29, 1955, for furnishing labor and materials for Gila Substation Additions, Parker-Davis Project, Arizona-California-Nevada. Location near Yuma, Arizona. Principal items are 275 cu. yds. excavation; 43,000 lbs. furnishing and erecting steel structures; 80 cu. yds. concrete; installing one 154-kilovolt power autotransformer; and other work. Completion time 150 days. For particulars, address Bureau of Reclamation, Boulder City, Nevada; P. O. Box 392, Phoenix, Arizona or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4552) will be received at Albuquerque, New Mexico until December 1, 1955, for furnishing labor and materials for Access Road Improvements for Rehabilitation of Drains, Middle Rio Grande Project, New Mexico. Location between Albuquerque and San Antonio, New Mexico. Principal items are 177 miles of constructing various types of access roads along existing drains; 4,000 lin. ft. of corrugated metal pipe with diameters from 18 to 60 inches; 3,275 cu. yds. of excavation for structures and from borrow; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: December 13, 1955

Allegheny County Sanitary Authority Intercepting Sewers

CONTRACTS 28, 45, 50, 51 and 52

Sealed bids or proposals for Contracts 28, 45, 50, 51 and 52, for constructing portions of an intercepting sewer, generally in rock tunnel, with connections and other appurtenances will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2:00 P.M. Eastern Standard Time on December 13, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grant Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 28 includes approximately two miles of intercepting sewer varying from 16" to 54" inside diameter.

Contract 45 includes approximately three miles of intercepting sewer varying from 15" to 42" inside diameter.

Contract 50 includes approximately six miles of intercepting sewer varying from 18" to 90" inside diameter.

Contract 51 includes approximately four miles of intercepting sewer varying from 8" to 48" inside diameter.

Contract 52 includes approximately four miles of intercepting sewer varying from 18" to 60" inside diameter.

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh, Pa. A deposit of one hundred dollars ($100) will be required for one set of drawings and contract documents on each contract, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty dollars ($50) will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond, each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY
SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

Bids: December 20, 1955

Allegheny County Sanitary Authority Intercepting Sewers

CONTRACTS 30 to 33, Inclusive, and 53 to 55, Inclusive

Sealed bids or proposals for Contracts 30 to 33, inclusive, and 53 to 55, inclusive, for constructing portions of an intercepting sewer, in both tunnel and open cut trench, with connections and other appurtenances will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2:00 P.M. Eastern Standard time on December 20, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grant Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 30 includes approximately two miles of intercepting sewer varying from 36" to 45" inside diameter.

Contract 31 includes approximately one mile of intercepting sewer varying from 21" to 54" inside diameter.

Contract 32 includes approximately four miles of intercepting sewer varying from 36" to 45" inside diameter.

Contract 33 includes approximately six miles of intercepting sewer varying from 24" to 42" inside diameter.

Contract 53 includes approximately two miles of intercepting sewer of 54" inside diameter.

Contract 54 includes approximately two miles of intercepting sewer varying from 36" to 54" inside diameter.

Contract 55 includes approximately five miles of intercepting sewer varying from 8" to 36" inside diameter .

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh, Pa. A deposit of one hundred ($100) will be required for one set of drawings and contract documents on each contract, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty ($50) will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond, each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY
SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

Bids: November 15, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF TOWERS, GUIDES & SILLS
FOR
BARNHART ISLAND POWER PLANT, LONG SAULT DAM AND MASSENA INTAKE
SPECIFICATIONS NO. PA-5-15056
ST. LAWRENCE CONTRACT NO. P19

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture, and furnishing of Towers, Guides and Sills for Barnhart Island Power Plant, Long Sault Dam and the Massena Intake and delivery thereof f.o.b. destination in the following ways:

(1) If delivered in person on the day of receiving bids until 10:30 A.M., Eastern Standard Time on the 15th day of November 1955, Hearing Room C on the 6th Floor, 270 Broadway, New York 7, N. Y.

(2) If mailed in until 10:15 A.M., Eastern Standard Time on the 15th day of November, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, N. Y.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

The work involves the fabrication of approximately 4500 tons of structural steel and rails. Bids will be entertained for all the metal work in accordance with the biding schedule. Erection at the site of installation will be done by Others.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineers, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, N. Y., upon application and prepayment of a fee of Twenty Dollars ($20.00) per initial set of contract documents and Ten Dollars ($10.00) per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 per cent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-15056
10/21/55

Bids: December 6, 1955

Allegheny County Sanitary Authority Upper Allegheny System

INTERCEPTING SEWERS AND PUMPING STATIONS
CONTRACTS 64 to 69, INCLUSIVE

Sealed bids or proposals for Contracts 64 to 69, inclusive, for constructing sewers and force mains, Contract 64; for constructing substructure and superstructure of pumping stations and ejector station, Contract 65; for furnishing and installing pumping and ejector equipment, and appurtenances, Contract 66; for electrical work, Contract 67; for plumbing, Contract 68; and for ventilating work, Contract 69, will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2.00 P.M., Eastern Standard time on Tuesday, December 6, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grant Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 64—Intercepting sewers for the Verona Project including a subaqueous river crossing, open cut sewers, force mains, and all appurtenances and repairs to existing sewers.

Contract 65 includes substructures and superstructures for Verona and Squaw Run Pumping Stations and Montrose Ejector Station.

Contract 66 includes pumping and ejector equipment and appurtenances at Verona and Squaw Run Pumping Stations and Montrose Ejector Station.

Contract 67 includes electric work at Verona and Squaw Run Pumping Stations and Montrose Ejector Station.

Contract 68 includes plumbing at Verona and Squaw Run Pumping Stations and Montrose Ejector Station.

Contract 69 includes ventilation at Verona and Squaw Run Pumping Stations and Montrose Ejector Station.

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. A deposit of fifty dollars ($50) will be required for one set of drawings and contract documents including all contracts, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only twenty-five ($25) dollars will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond, each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY
SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

Bids: December 6, 1955

Allegheny County Sanitary Authority Intercepting Sewers and Sewage Treatment Plant

CONTRACTS 29 AND 48

Sealed bids or proposals for Contracts 29 and 48, for constructing portions of an intercepting sewer, in an open trench, with connections and other appurtenances will be received at the office of the Allegheny County Sanitary Authority, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pa. until 2:00 P.M. Eastern Standard Time on Tuesday, December 6, 1955. Immediately thereafter they will be taken to Room 410 in the Court House, Grant Street and Fifth Avenue, Pittsburgh, Pa. and then publicly opened and read.

Contract 29 includes approximately one mile of intercepting sewer varying from 14" to 24" inside diameter.

Contract 48 includes approximately two miles of intercepting sewer varying from 12" to 30" inside diameter.

Drawings and contract documents may be examined and obtained at the office of the Authority, 701 Civic Building, 200 Ross Street, Pittsburgh, Pa. A deposit of one hundred dollars ($100) will be required for one set of drawings and contract documents on each contract, which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty dollars ($50) will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date, but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) percent of the bid price. The successful bidder must furnish a Performance Bond and a Labor and Materialmen's Bond, each for 100 percent of the contract price.

The right is reserved to reject any or all bids.

ALLEGHENY COUNTY
SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

EMPLOYMENT OPPORTUNITIES

OFFICIAL PROPOSALS

Bids: November 17, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR CLEARING OF
LONG SAULT AND DELANEY ISLANDS
AND ADJACENT MAINLAND AREAS
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11014

ST. LAWRENCE CONTRACT NO. 24
NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the clearing of Long Sault and Delaney Islands and adjacent mainland areas near Massena, St. Lawrence County, New York in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M. Eastern Standard Time on the 17th day of November, 1955, at 270 Broadway, Hearing Room C on the 6th floor, New York, New York

(2) If mailed in, until 10:15 A.M. Eastern Standard Time on the 17th day of November, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above.

The work consists of approximately 1,433 acres of clearing and shall be completed on or before July 1, 1956.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set and Five ($5.00) dollars per set for additional sets, no part of which will be refunded.

Bids will not be restricted to American contractors.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Each proposal must be accompanied by a draft or certified check payable to the order of the Power Authority of the State of New York in an amount not less than 10 per cent of the gross sum bid.

The right is reserved to reject any or all bids

10/25/55
PA-5-11014

W. S. CHAPIN
GENERAL MANAGER

Bids: November 22, 1955

British Columbia Power Commission

CALL FOR TENDERS
UPPER CAMPBELL RESERVOIR
CLEARANCE, VANCOUVER ISLAND

The British Columbia Power Commission, Box 500, Victoria, B.C., will receive sealed tenders until 12 noon P.S.T., November 22nd, 1955, for logging (30,000,000 FBM) and clearing (6200 acres of logged-over area, or portions thereof) around Upper Campbell Lake, Vancouver Island, B.C.

Specifications may be obtained from the Commission, Box 500, Victoria, B.C., upon deposit of $50 per copy, refundable upon return, or a copy may be viewed at the Building and Construction Industries Exchange, 342 West Pender Street, Vancouver, B.C.

Tenders will be opened in public at 2 p.m., P.S.T., November 22nd, 1955.

Lowest or any tender not necessarily accepted.

STEEL AIRPLANE HANGAR

TETERBORO, N. J.

Erected In 1949

Size 60' x 53'4" x 12'. Bowstring roof with steel leanto on one side housing office space and toilet facilities—20' x 53'4" x 8'. Wood frame leanto on other side—15' x 53'4" x 8'. Overall size 94'9½" wide, 53'4" deep, 19'8" high.
To be sold "as is, where is". Bids are due on or before 3 P.M. Monday, November 14, 1955. For details and bid papers write or phone

The Port of New York Authority
Department of Purchase & Administrative Services
111 - 8th Avenue, New York 11, N. Y.
Tel.: ALgonquin 5-1000, Ext. 206.

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

NATIONAL COVERAGE

Positions Vacant
Positions Wanted
Part Time Work

Civil Service Opportunities . . .
Selling Opportunities Wanted
Selling Opportunities Offered

Employment Agencies
Employment Services
Labor Bureaus

DISPLAYED —RATES— **UNDISPLAYED**

The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.
Subject to Agency Commission.

$1.80 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.
Not subject to Agency Commission.

Send NEW ADS to ENGINEERING NEWS RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for November 17th issue closing November 4th.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Wanted. Sanitary or Civil Engineers as resident engineers on large sewage project involving sewage treatment plant, pumping stations, and 63½ miles of intercepting sewers including 30 miles in tunnel. Program calls for 3-year construction period. Must be experienced. Give full particulars and salary first letter. Allegheny County Sanitary Authority, 701 Civic Building, Pittsburgh 19, Pennsylvania.

Associate City Engineer—for general municipal work. Experience in operation or construction of Sewage and Water Works desirable. Send complete record of education, experience, references, personal data, salary desired and date available to City Engineer, Mankato, Minnesota.

Quarry Superintendent, capable of setting up and running complete operation, location—New England. P-7921, Engineering News-Record.

Field Office Manager, highway construction, handle payroll, cost, equipment records, etc. Present location, New England, permanent status for right man. P-7918, Engineering News-Record.

Wanted recent civil or mechanical engineering graduates, general field municipal water supply. Annual increase in salary and bonus. Profit sharing plan. Pitometer Associates, Engineers, 50 Church Street, New York City.

NOTICE
to
ADVERTISERS

Because of the Holiday, Election Day, November 8th, the "Searchlight" pages of the

November 17th Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.
The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, November 4th
PROPOSALS
Friday, November 11th

POSITIONS VACANT

Instructor or Assistant Professor of Civil Engineering. Teaching experience desirable but not necessary. B.S. or M.S. in Civil Engineering req'd. Salary and academic rank commensurate with degree and experience. Contact Civil Engineering Department, University of Denver, Denver 10, Colorado.

Graduate Civil Engineers or Architectural Engineers not over 27 and single, or if married, willing to move. Must have military training completed and interested in learning the building construction business, starting in the field. We offer opportunity for rapid advancement to ambitious, hard-working young men willing to accept responsibility. Starting salary $92.50 per week if unexperienced with higher rates for those with some experience. Not unusual for our engineers to increase their salary 20% to 25% first year. Send complete history data. Martin K. Eby Construction Co., Inc., 610 N. Main, Wichita 5, Kansas.

Works Manager—For a light metal manufacturing operation with 1800 employees. Mid-West Company. Must have mechanical skills—an M.E. degree preferred. Record of good planning and management a requisite. Send resume and salary expectations to P-8075, Engineering News-Record.

Superintendent or Ass't. Supt. capable of running in the field a variety of medium sized heavy construction jobs. Give detailed outline and salary requirements. P-8043, Engineering News-Record.

Civil Engineer: The Engineering Department of the City of Fort Lauderdale, Florida has a vacancy for a graduate civil engineer. The duties are varied, covering all phases of office and field work. The salary range is $364-460 monthly. Starting salary will depend on the qualifications of the individual. Applications may be obtained by writing to the Civil Service Department, City Hall, Fort Lauderdale, Florida.

Cost Engineer—In charge of department responsible for all cost keeping, progress reporting and estimating extras and changes of contract scope, on large foreign Air Base project. P-8163, Engineering News-Record.

Civil Engineers. Structural design or paving. Registration required. Salary to $6500, depending on experience. Inquire: Personnel, P. O. Box 1160, Austin, Texas.

Professional engineer and licensed land surveyor (N. J.). To head engineering department for residential developer. Experienced in designing plans for sanitary sewers, storm sewers, roads and other work incidental to developments. Starting salary open. Write stating age and experience. G & H Construction Company, 21 Michigan Avenue, Kenilworth, New Jersey.

Assistant City Engineer for Wisconsin City with 15,000 population. Registration as professional engineer in Wisconsin is desirable as appointment as City Engineer may be possible upon retirement of present City Engineer. In first letter, state age, experience, and salary expected. P-8135, Engineering News-Record.

Designers for toll roads and bridges. Experienced and inexperienced men with a civil engineering degree wanted (for a period of about 24 months) in the office of a well known organization in central Pennsylvania. State qualifications, age, salary requirements and availability in first letter. P-8158, Engineering News-Record.

(Continued on following page)

ENGINEERS

HIGHWAYS AND BRIDGES

Designers
Draftsmen
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Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

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EXPERIENCED HEAVY BUILDING CONSTRUCTION SUPERINTENDENTS

Capable of heading up complete field organization. Top notch men need only apply. Main Office in the New York Metropolitan area. Furnish complete information.

P-8145, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

HEATING & VENTILATING ENGINEER

Graduate Engineer experienced in all phases of paper mill heating and ventilating air conditioning and refrigeration for large expanding and progressive mill in Maryland. Under 35 years of age, good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

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SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 45 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

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659 Brisbane Bldg. Buffalo 3, N. Y.

(Continued from preceding page)

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Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

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Mechanical Engineer, 58 years old, now employed on construction project nearing completion, seeks position of responsibility with engineer, contractor or manufacturer in charge of construction, design or maintenance. Well qualified for all. Good organizer, able administrator. Prefer industrial north-east. $10,000.-$15,000. PW-8038, Engineering News-Record.

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Executive Engineer — Superintendent. Lic. prof. engineer. Qualified journeyman 6 trades prior to B.S. degree engineering. Cost conscious. Excellent administrator and public relations. Assumes full responsibility with modern know-how to complete, on schedule, schools, hospitals, airports, bridges, industrial and other construction. Principals only. PW-8175, Engineering News-Record.

Contractors Asst. or General Supt. Will travel U.S. or overseas. 25 years exp. on construction of piers, docks, river intakes, caissons, subaqueous work and all types of pile foundations and cofferdams. Estimate, bid, negotiate and supervision. Engineering background, good following of key men. Excellent references. Available after 1st of year. PW-8113, Engineering News-Record.

New Zealand Civil Engineer—Registered, B.E. (Civil), A.M.I.C.E. A.M.N.Z.I.E.—aged 32. 15 years experience, including 5 years with large N.Z.-U.S.A. combine. Chief N.A. Engineer import wharf., asst. field engineer tasman paper mill, president engineer earth dam. Estimating, costing, ordering experience. Requires position Canada or U.S.A. Fit, energetic, can use initiative. Write Engineer, 277 River Rd, Hamilton, New Zealand.

Construction Supt. or Gen'l Supt. age 44 good health married civil engineer training. 15 years diversified state, super highway and appurtenance structures, clean character, reliable, good record available Nov 1st, go anywhere. Urgent. PW-8172, Engineering News-Record.

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My Associates and I have taken over and successfully completed more than twenty-five sizeable construction contracts of all types for Sureties and Contractors in the past two years.

We are prepared to handle your problems on almost any basis that will tie in with your own ideas. We sometimes use part or all of the Contractor's present organization, and in other cases we furnish all new administrative personnel for both field and office activities.

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Buildings and Heavy construction, qualified in all phases of contracting, bid to completion, seeks new connection as Project Manager to handle large operation, or as Chief Estimator or other executive position in Contractor's office, where top man is required and scope permits full use of ability. Minimum salary $15,000.

PW-8106, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Write
Freeman Mann
DRESSER-IDECO COMPANY
One of the Dresser Industries
875 Michigan Ave.,
Columbus, Ohio

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A nationally known manufacturer desires to employ recent mechanical or industrial engineering graduate for position of staff engineer in one of its tin can plants located in Eastern Ohio. After training, should be able to take over all plant engineering functions. Must be production-minded as well as having supervisory ability. Tin can experience desired but not necessary. State age, education, experience, salary desired and other information.

P-8001, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

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Graduate Engineer, Civil or Mechanical with several years experience. We fabricate all types of tanks, stacks and breeching. Work location in large Southern city.

Permanent employment, liberal company benefits, salary commensurate with experience. Write fully in confidence stating experience, education and salary requirements to:

P-8166, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

MECHANICAL ENGINEER

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large expanding and progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience. Send resume to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

BRIDGE ENGINEERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:
Detailers—2 years structural steel or reinforced concrete detailing.
Designers—4 years responsible work on structural steel and concrete including work on long span bridges.
Mail complete resume together with salary required to:

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Heavy Building Construction Firm

Main Office in the New York Metropolitan Area.

Most experienced and qualified only. Furnish complete resume.

P-8142, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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One Piping Estimator
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Apply to Kaminer Construction Corporation, P. O. Box 227, Chamblee, Georgia. Need piping estimator capable of complete takeoff and handling of jobs involving paper mill, chemical plant, power plant and general industrial piping. Also general construction estimator to handle industrial buildings, as well as all types general construction occurring in above types of work. We are moving our headquarters from Greenville, South Carolina to greater Atlanta. Salaries open.

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BRIDGE DESIGNERS

Excellent opportunity for Structural Engineers experienced in design of structural steel or reinforced concrete, who desire to work with an established organization on large, long-term expressway programs. Recent graduates and detail draftsmen accepted. Pleasant living conditions in Harrisburg, Pennsylvania. Insurance, pension and bonus plans reward service.

Send complete outline of experience, date available and salary desired in first letter to:

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Box 366, Harrisburg, Pa.

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Opportunity available for Sanitary Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years. Require man experienced in paper mill wastes, paper mill stream pollution and paper mill water purification. No other experience will be given consideration. Good salary and advancement. All replies confidential. Send resume of educational background and industrial experience to Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to
Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

WANTED

Experienced Superintendent

In Filter Plant, heavy earth & Rock excavation, Exceptionally large forming job. Send resume of experience and reference.

P-8058, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Permanent positions now available. Some highway experience preferred but not required.

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P8080 Engineering News-Record
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Vibrators, mixers and water heaters, salamanders, buggies, wheelbarrows, hopper, wheelbarrow scales, chutes, bottom dump buckets, form ties, skil saws and many other concrete items.

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Gurley Transit.

The bulk of this equipment is in unusually fine condition; some is worn but serviceable. Your inspection at Ronceverte invited. Subject to prior sale.

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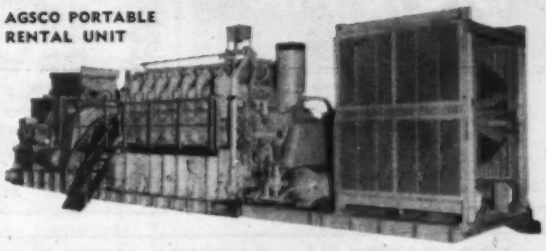

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One Lippman Belt Conveyor Hopper Car Unloader complete with 60 ft. radial stacker, gas engine driven, mounted on two (2) pneumatic tires, like new.
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Model 190T61
80' Boom plus 30' jib

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ACME SAFETY NET—10 Sections, ea. 40' x 55' Mesh Rope: ½" dia.; Frame Rope: ¾" dia. Mesh opening: 4" x 4"; Corner Lanyards: ¾" dia., 15' long Rope is first grade manila, mildew resistant treated

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OUR COST—$319.00 per Section
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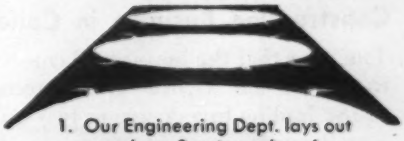

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EDITORIALS

Local Initiative on Flood Relief

CONNECTICUT, HARD HIT BY TWO FLOODS in quick succession, is continuing its practical approach to flood problems. A special session of the state's General Assembly has been called for Nov. 9 to enact flood-relief measures. Under discussion is a temporary increase in the state's sales tax to provide funds for emergency repair and reconstruction in flood-damaged areas. This would include repair to schools and municipal buildings.

The heartening aspect is that Connecticut is not sitting back waiting for Uncle Sam to act beyond what could be done by the Army Engineers and Civil Defense agencies. In the end, we confidently expect, Congress will be inclined to act quickly on needed measures as a result of this showing of local initiative.

Construction Business in College

THE FACT that the business of construction—as opposed to the art and science—is now recognized as a formal course leading to a degree in two California universities is well worthy of note.

Like most American enterprises, the tradition in construction has long been that with the right combination of intestinal fortitude, brains, money and luck any man could be a success. But like most American enterprises, construction has now grown enormously complex—and the old formula often isn't enough. Business know-how is as essential as construction know-how.

It is interesting, too, that the two California courses are outgrowths of the efforts of two different organizations within the construction industry—both of which come up with essentially the same ideas and courses.

Several weeks ago, the University of California at Los Angeles announced (ENR Sept. 29, p. 74) that it was offering for the first time to undergraduates a major in construction management, leading to a degree of bachelor of science in business management.

Within another week, a story came from Stanford University concerning a graduate course in construction, leading to a master's degree in civil engineering. The courses at UCLA were worked out in cooperation with the California affiliate of the National Association of Home Builders; those at Stanford with the Associated General Contractors. UCLA's course will be offered by its business school; Stanford's by its school of engineering, as an extension of undergraduate construction business options that have been offered since 1946.

But both courses will stress construction law, finance, accounting, selling methods, estimating and the humanities.

Both courses are, of course, the result of long effort by the groups involved. AGC has fought this battle for many years, and has succeeded in getting courses introduced in a number of schools. NAHB has been urging such studies during almost its entire 12-year life.

The key point, of course, is not who sponsors them, but the fact that such courses are being given at all. All construction men—regardless of previous educational or other background—should push to see that more such courses are available. The business of construction is much too important to the nation to be longer absent from college curricula.

What is Diversion of Highway Taxes?

THE QUESTION of what constitutes diversion of highway taxes to other than highway purposes has become a highly controversial issue in New York State, where the voters, next week, are being asked to approve a bond issue of $750 million for an expanded program of highway construction.

The bond amendment to the state's constitution is being opposed by the New York State Automobile Association because it is not accompanied by a second amendment earmarking for highway purposes all the income from the increased motor-fuel taxes that have been authorized to finance the bond issue. The association holds that some future legislature can vote to divert that income to other than highway purposes, and states that since 1924, New York State has diverted to its general funds nearly one billion dollars in automotive taxes.

Against these claims, the state's Temporary Highway Finance Planning Commission sets figures to demonstrate that, when all levels of government are considered, highway and street expenditures in New York State during the 25-year period 1928-1953 totaled $5.3 billion. During the same period the collections from highway taxes and fees amounted to $2.4 billion, or less than half the outlay on roads and streets. As the state makes large annual contributions from its general funds to the local government agencies, the finance commission holds that there has been no real diversion of highway taxes.

In support of this stand the commission quotes from "American Public Finance", by Shultz and Harris: "So long as a state and its local governments are spending more on motor highways than is produced by highway taxes, it is ridiculous to call 'general fund' handling of highway taxes 'diversion'."

Logic appears to be on the side of the finance commission. This is not to argue that so-called anti-diversion amendments, earmarking motor-vehicle taxes for highways, are not desirable to check a tendency to carry such taxes to unfair and unreasonable levels. But that is more a matter of tax philosophy than of tax diversion. The mere placing of motor-vehicle taxes in a state's general fund does not classify as diversion until an equivalent amount of money fails to come out of that fund for highways.

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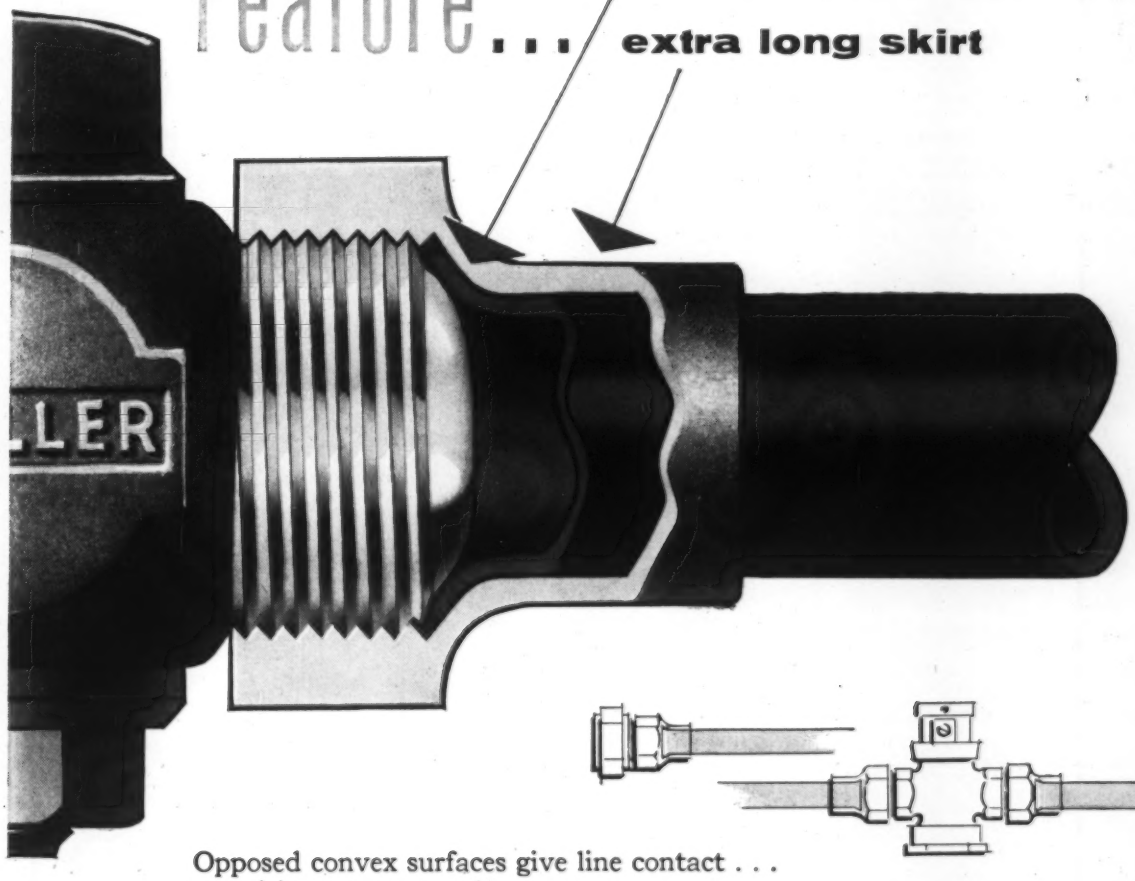
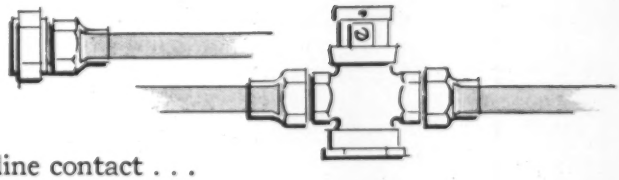
Feature . . . **opposed convex surfaces**

extra long skirt





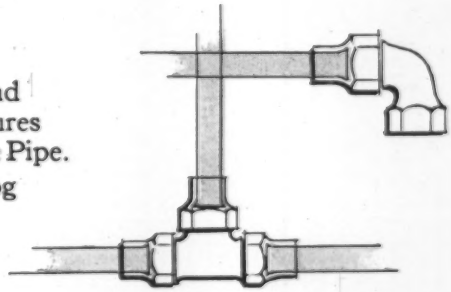
Opposed convex surfaces give line contact . . . a positive pressure seal!

Extra long skirt in tube nut gives the needed strength to the connection.

A full line of Corporation Stops, Curb Stops and Service Fittings with these and other plus features are available for use with Mueller Copper Service Pipe.

Consult your Mueller Representative or Catalog W-96 for full details.

Threads adopted as standard by AWWA



MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

Cuts 10 in. deep, carries 21 yard loads

TIMKEN® bearings keep it wheeling

CARRYING 21 yard loads, and often through conditions of heavy dust and dirt, the wheels of this International Harvester B170A scraper presented a neat design problem. How to keep out the dirt that would soon ruin any bearings under this load and yet take the heavy shock loads?

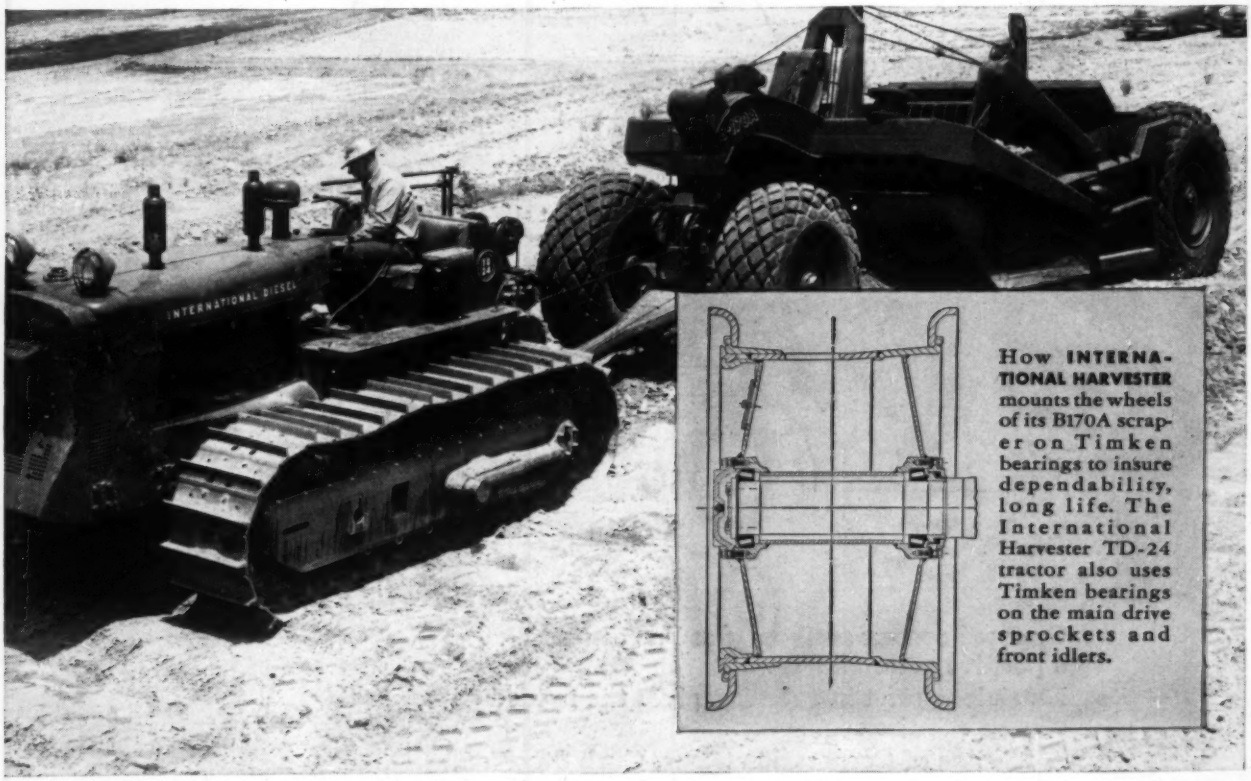
The solution: Timken® tapered roller bearings. Their precision keeps axle and wheel hub concentric and helps to provide maximum closure efficiency. Their tapered design lets them take any combination of radial and thrust loads, preventing side motion of wheels. These features work together to make the closures more effective, keep dirt from getting in, and keep the grease from getting out.

Timken bearings have exceptional capacity, since the load is carried on a *line* of contact between race and roller. They can take the shocks of rutted, bumpy ground, too; rollers and races are case-hardened, to give a hard, wear-resisting surface over a tough, shock-resisting core.

Because no bearing can be better than its steel, we make the steel for Timken bearings ourselves. It's the only way we can be sure it will be good enough.

For the least friction, the least maintenance, and—in terms of performance—the least cost, always specify the bearings with the trademark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



How **INTERNATIONAL HARVESTER** mounts the wheels of its B170A scraper on Timken bearings to insure dependability, long life. The International Harvester TD-24 tractor also uses Timken bearings on the main drive sprockets and front idlers.

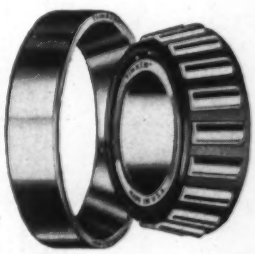
OUR OWN NICKEL-RICH ALLOY STEEL MAKES TIMKEN BEARINGS TOUGHER

Nickel makes steel tougher. And we don't skimp on nickel in the fine alloy steel we make for Timken bearings. Our steel-making specialists use the exact amount to give Timken bearings the toughness they need to withstand shock, last longer. We control the quality of Timken bearings at every step in production—from melt shop through final bearing inspection.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬮ AND THRUST ⬮ LOADS OR ANY COMBINATION ✳